UNBOUND NOTES AND DRAWINGS
UNDATED, CA. 1887-1898

Notes for Mr Coffin -

1st As far as is known to man there are only two things known in the world — Matter and an unknown something that moves this matter —

This unknown something that moves matter, travels through the Universe at the rate of 196,000 miles a second —

Light, Radiant heat & Electricity all travel at the same rate, therefore it is presumed that they are ~~the same thing but~~ the same thing, because you can with proper apparatus

2

turn heat into light or vice versa or heat or light into Electricity, or the reverse.

So this unknown thing that moves matter, ~~prevents itself~~ under certain ~~some~~ conditions presents itself as heat, or light or Electricity

Volts - this may be explained ~~by comparing it to steam~~ ~~Volts~~ using a water fall

If the water falls 100 feet or strikes a water wheel the water will have a pressure on the wheel buckets depressurized by a force of 100 ft

~~If we could~~ in Electricity we would say the Electricity had a pressure on the armatures of an Electric Motor of 100 Volts, —

With the Water Fall, the size of the stream was twice as big in one inch in diameter That ~~of~~ we would call in Electricity one amperes

Instead of the ~~to~~ inch of water falling 100 ft ~~upon~~ the water wheel - giving a certain power — 100 inches of water falling only one ft

would give the same power, in Electricity ~~we would say that~~ If 1 amperes with 100 Volts pressure on the Electric Motor gave a certain power then 100 amperes and 1 Volt will give the same power —

Another Analogy is the Steam Boiler — The pressure of steam in the boiler represents the Volts the amount of steam passing through the pipe represents the amperes —

5

Another analogy is a belt driving machinery — The speed of the belt represents the Volts the width represents the Amperes —
a belt 24 inches wide having a speed of 100 ft a minute will convey no more horse power. Then a belt one inch wide running 2400 ft a minute
Rankin the great Scotch Engineer Calculated that if a single spider web could be run over pulleys at the velocity of light it could convey all the horsepower used in England

6

Electricity in its relation to matter, appears very different according to the Volts + amperes present. When the volts are enormous with scarcely any amperes as in lightning it appears to our senses quite different to our senses than the electricity from a single cell of a battery but there is no actual difference the small Electricity the lightning Was a million times more powerful than

the cost of a million lives
less numbers so to speak.

1 | Carbon

2nd

An Illustration by an old Scotch Telegraphy line repairer to a new Repairer, when ~~being~~ asked how the Telegraph Works, said.
"Suppose you had a long dog that stretched from N.Y. to Philadelphia, you pull his Tail in NY & he barks in Philadelphia"

Electricity, Light, heat etc is supposed to ~~wave~~ be propagrated by waves through matter, like a stone thrown into a Mill pond sends out rings, ~~the~~ or The shaking

2

of a long Carpet laid on the lawn. By shaking one End of the Carpet, waves pass along the Carpet several inches high. Neither the Water nor The Carpet move any appreciable amount and yet these waves can be made to give considerable power, the Matter Coming from the Motion of the hand.

Another illustration is when Say 100 Bowling Alley balls are placed in a row & all in Contact, the slightest Tap given a ball at one end will send the End ball, at the other end a Considerable distance from the others which will fall

stand still, in fact all the balls except the first and last ones can be fastened so they can't move & yet the same effect will take place. A wave of compression goes thru all the balls + these were seat on springs rather except the first + last + the intermediate balls do not move –

These waves travel 3000 to 4000 feet per second, according to the material the balls are made of –

In the case of sound waves, in a long pipe; if we send a sudden puff of air into the pipe, it strikes a

blow on the air in the end of the pipe and this wave travels through the pipe at the rate of about 1000 ft per second x If the pipe was filled with water it would travel 2 or 3 times faster x If the pipe was exhausted of air a sound wave would not travel at all –

Yet Light Heat or Electricity would pass through –

Scientific men cannot conceive how light, for instance, could pass through or a wireless wave

of Electricity, if there was not something the waves could pass over, so they have a theory that if all the air were pumped out there would still be left a universal substance called the "ether" of space

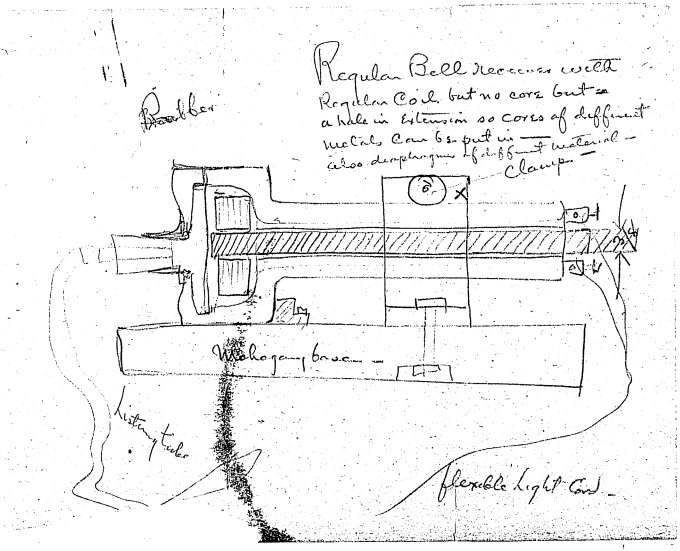
Light waves pass through this material, (ether) at the rates of 186,000 miles per second & Electricity passes thru at the same speed –

The number of vibrations ~~per second~~ of Red light is 700 million Million ~~times~~ per second; of Ultra Violet light 3000 million Million

~~times~~ per seconds There is no theory about this rate of vibration but scientists have a very simple means of measuring it x

Now when it comes to Electricity we do not know the rate, & have no means of measuring its rate if it has any x Some have supposed that its rate is very much higher or very much lower than light & that is the reason we know very little about Electricity –

As to Magnetism practically nothing is known


Regular Bell receiver with
Regular Coil but no core but a
a hole in Extension so cores of different
metals can be put in — of material —
also dampening effect of material —
Clamp
Rubber
Mahogany base
listening tube
flexible light cord

I want telephone clamped so that by loosening a thumb nut X it is unclamped & quickly removed ~~to pos~~ & quickly put back so I can change diaphragms quickly — Rods ~~cores~~ or cores are to be say 3/8 or such a size that they will pass through the wire — 0.066 in — They are to be faced off true on end next diaphragm & the hole must be exactly at right angles to diaphragm — The core should project one inch beyond the bending posts at the end of the telephone — Cores of the following metals should be made —

Aluminum
Antimony
Arsenic
Bismuth
Cadmium
Calcium (arc)
graphite (arc burned)
Cobalt
Copper
Iron
Thin Regular Bell Core (turned under)
Lead
Magnesium
Mercury in glass tube
Nickel

Silver
Sodium in glass tube sealed
Sulphur in glass tube
Tin
Tungsten in glass tube without the powder
Zinc
Germanium silver
Brass
~~Water~~

There should be made by Dally about 100 thin wall glass tubes with thin flat end

So I can fill the glass tube with powdered carbon and seal the end with paraffine,

put these glass tubes together in some box you put telephone so they will not be broken or damaged —

The following chapter gums should be made,

Aluminum	Copper	Silver	Celluloid
Cadmium	Prav - Rey Bell -	Tin	Rubber
Cobalt	Lead	Zinc	Mica
	Magnesium	Brass	
	Nickel	glass	

Bell Telephone Renewable Co.

New ark 75.000 — 200 000
Orange 65.000 200 000
Jersey City 75-000 200 000
Hoboken 65-000 200 000
280,000 800,000.

5000 —

Gas — 80.000.
Edison 20.000
Lighting 15-000
Elec. & 15-000
Bergen 15-000
Butler 15-32.50.
60.32.50

Lamp Co — 50.000
Morck 40.000.
Gas Co 20. 30.000
5 5.1 4 Com.

6 Commutators.

280
160
120 2 3.

12 Lots, @ 30 000, Mat 20,000
Bldg for sure only
6 dynamos; Mains and
250 Hp Engines feed water etc
Clock.
Engines 3 — 125 —
Piping —
Belting.
Meters, 280. "appliances —
High Main Mile 1/2
Commutator. 6.
Mains & feeders:
Station Aff —

Lamp Co — 20.000
Morck. 20.000
[redacted] — 5.000
Edison — 15.000
B & Co 15.000
Gas Light Co — 000.

Morck 11 000
" 10 000
5-000
15-000
Gas 41 000
B & Co 2 000
22.000
Lamp Co 43.000.

B & Co 1000.
1000
2000

Lamp Co
2200.
2200

L & Co 200 000 Cap —
30 000 —
190.000 —

77900.
45200
32,700. Cash required —

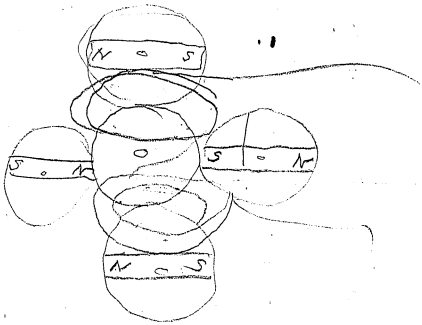
Stockholm Sweden

(1881)

Form L. 1000-5-13-'86.

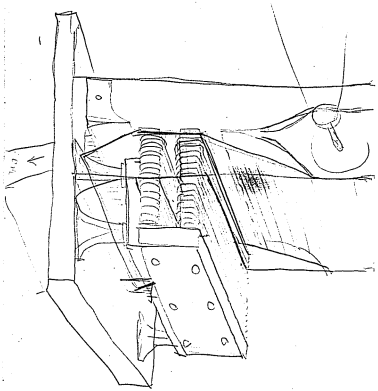
THOMAS A. EDISON,
No. 65 FIFTH AVENUE.

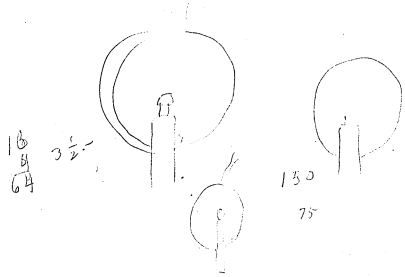
New York, ... 188



The Edison Lamp Co.,

Harrison, N. J.,.....188

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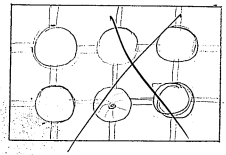
"Cable Address "Edison, Newark."

From the Laboratory
of
Thomas A. Edison.
Orange, N.J.



John -
Come up stairs I
want to see you
E

"Cable Address "Edison, New York."

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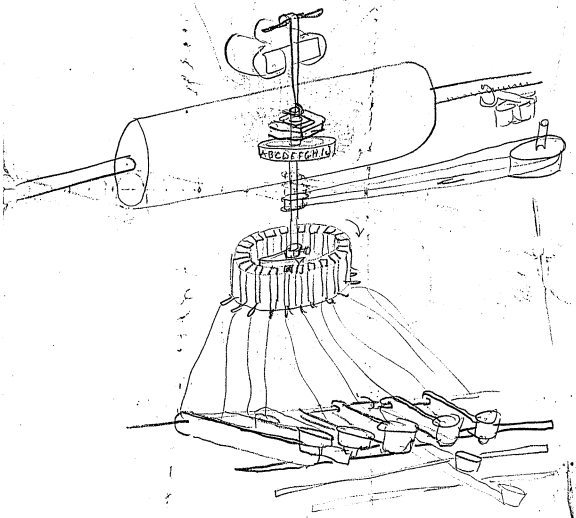
Subject, _____ Orange, N.J. _____ 188



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From the Laboratory
of
Thomas A. Edison.

Orange, N.J. _____ 188

3 inches,

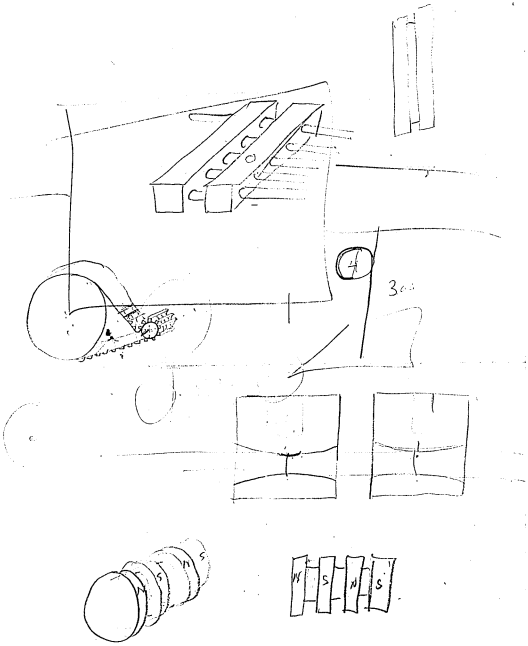
.25
44
100
1100

144
2
288
2
3 | 576
192
58
596
600
1136.
11

2
2
44
44
3 | 176
58,

4 cells. – 3 ohm

58 ft lb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Cable Address "Edison, New York"

From the Laboratory
of
Thomas A. Edison

Subject, _____ Orange, N.J. _____

72.
31
72
216
2232

250 000 — 3 .5

200. 900 — 900 —

15
40
10
15
110 — 10 9

5400
3600 —
1800
300
15 | 5400
45
90

75

2250 300 2250
675

900
300
270000

Sk-1 Gms · 7 oz

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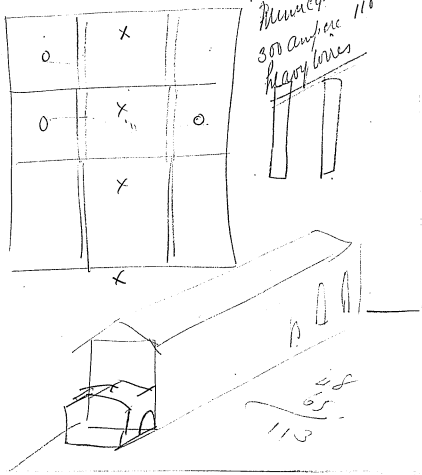
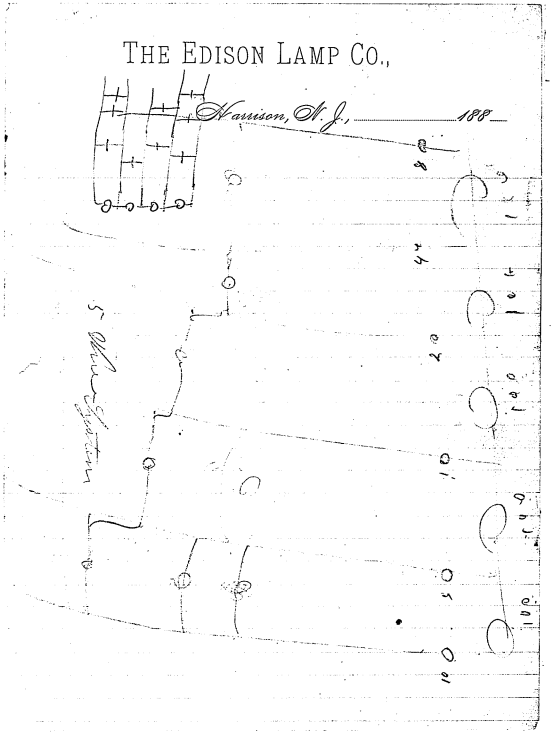
Orange, N.J. _____ 188

Light all floors
Municipal
300 amperes 110
heavy bars



THE EDISON LAMP CO.,

Harrison, N. J., _____ 188_



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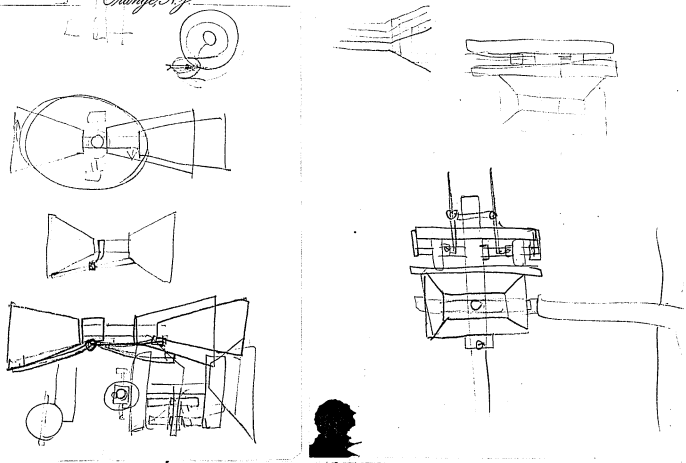

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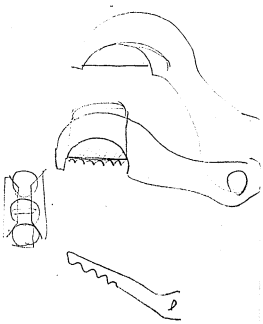

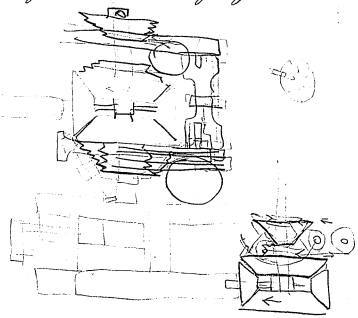

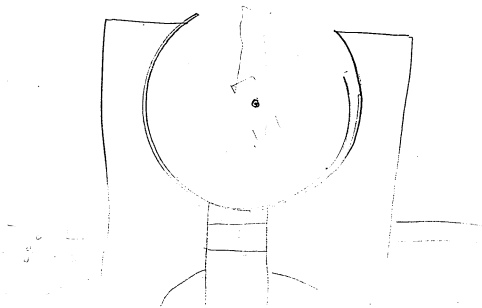

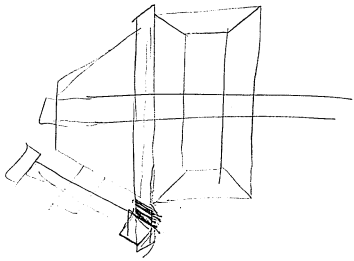

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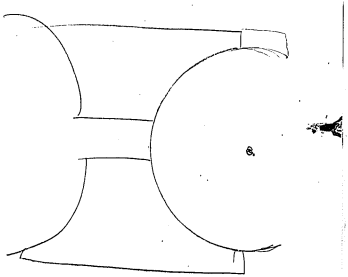

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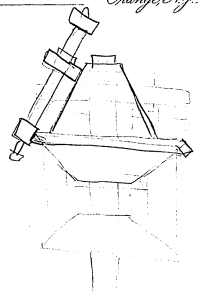

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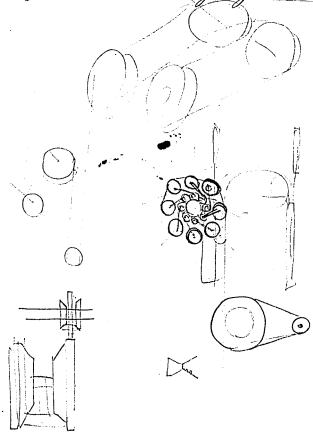

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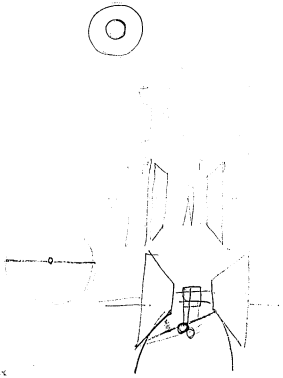

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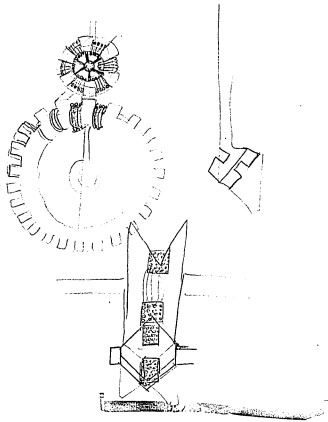

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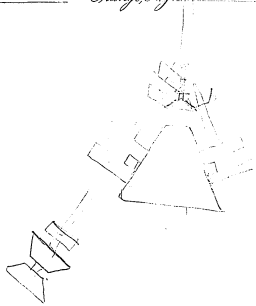

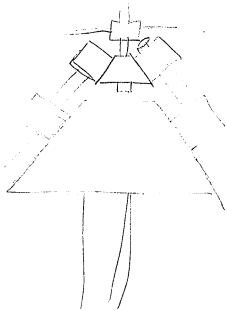

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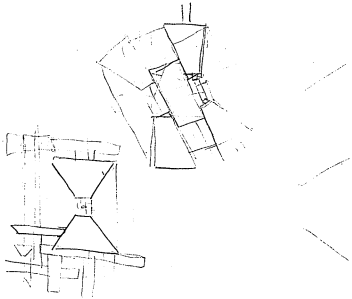

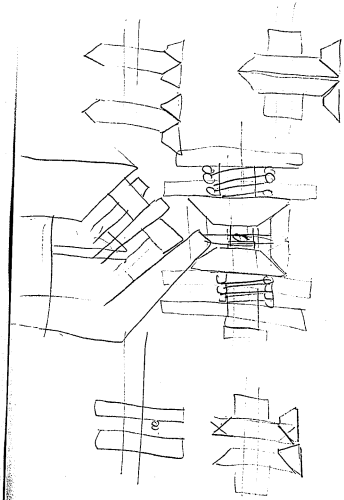

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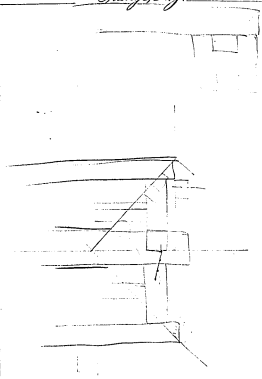

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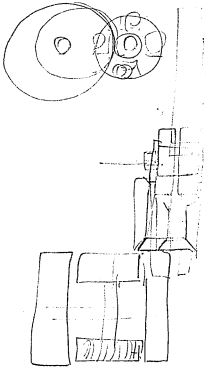

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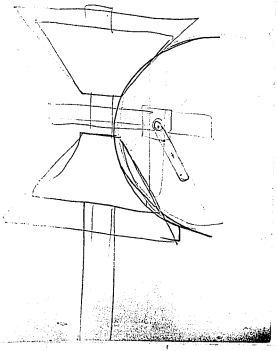

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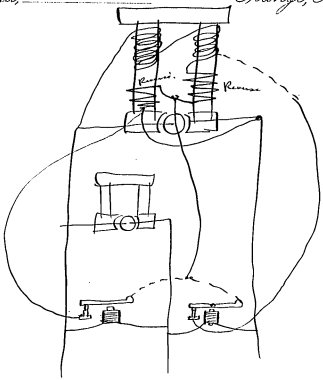
Subject, _____ Orange, N.J.

No 1



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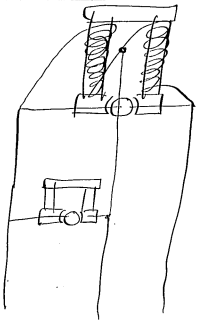
Subject, _____ Orange, N.J.

No 2



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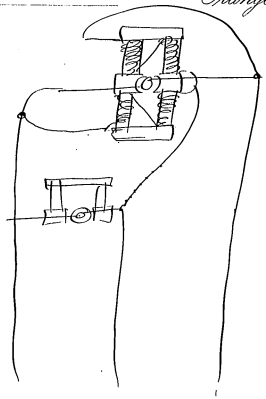
Subject, _____ Orange, N.J. _____



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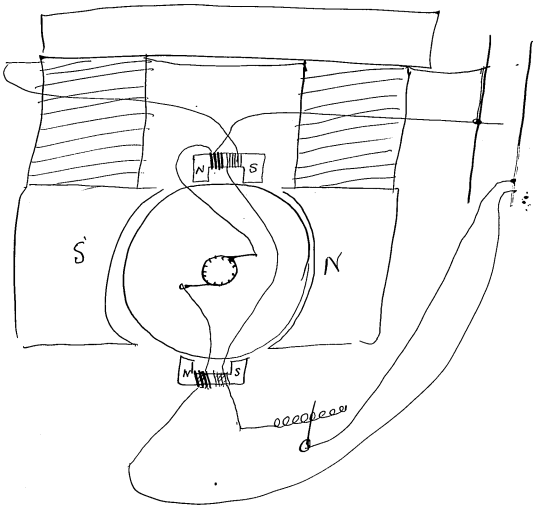

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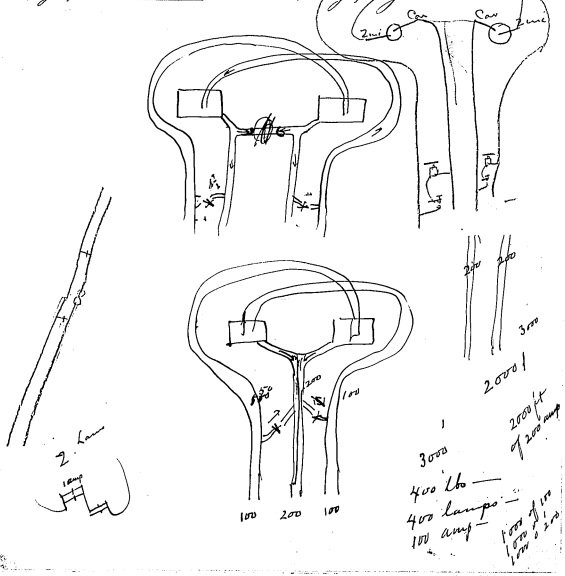

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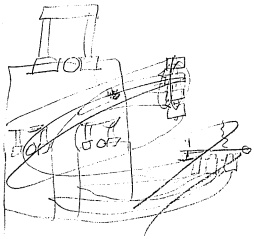
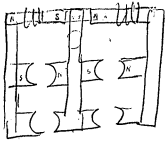
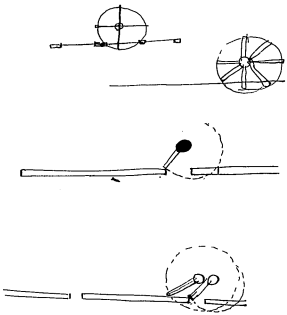




Cable Address "Edison, New York."

From the Laboratory
of
Thomas A. Edison.

Subject, _____ Orange, N.J.



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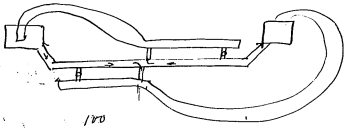
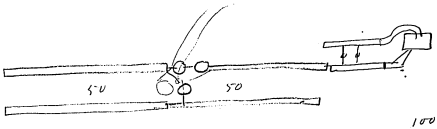


1/2

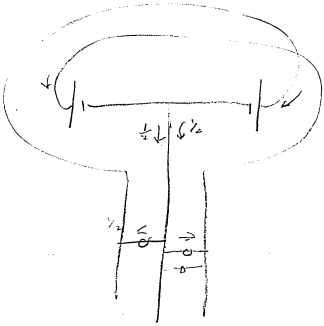
8000 ft. 1/2 8000 1 amp



100 Lamps 25 amp
1000 feet. 2000 lb
100 Volt -

100 Lamp -
25 amp -
2000 feet.
200 Volts.

100 Lamp -
25 amp 2000 feet
500 Lbs 200 Volts.



400 · 50 Each
25
12.5 Each
24
36.5

12.5 50
25
73.

Cable Address "Edison, New York."

From the Laboratory
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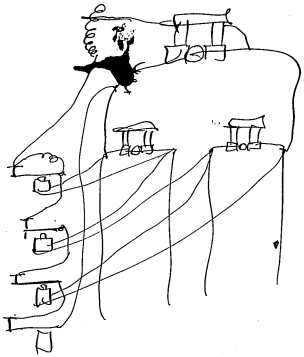
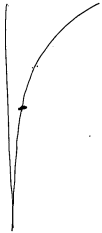
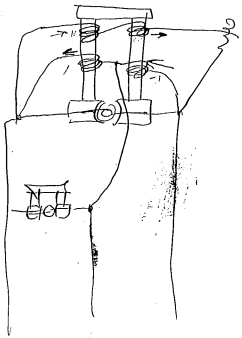
Thomas A. Edison.

Subject: _____ Orange, N.J.







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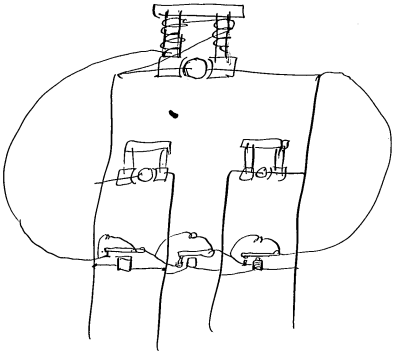

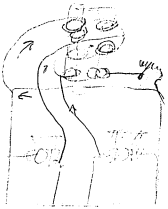

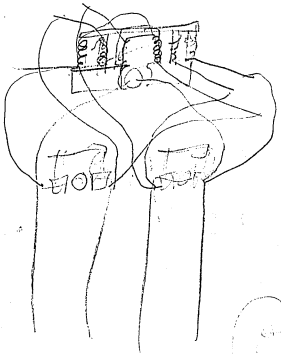

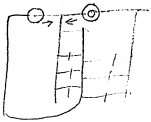

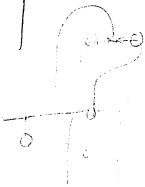

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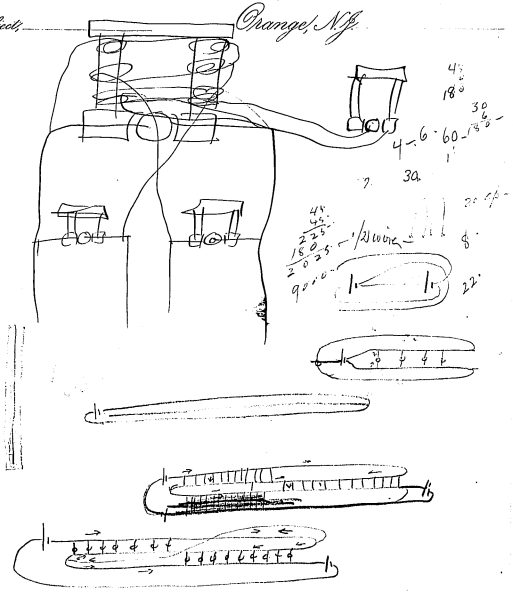

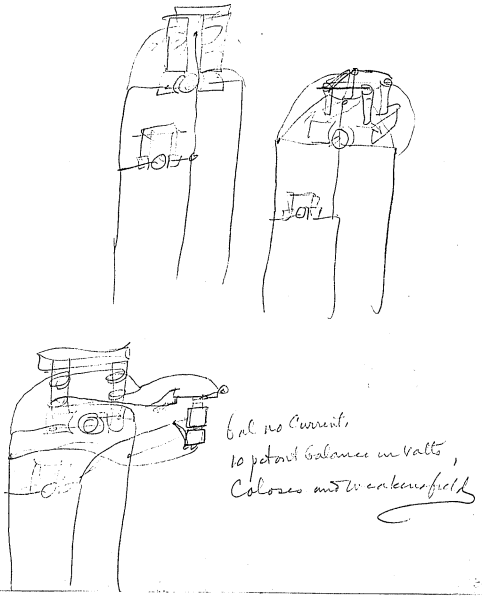
6 ml no Current
10 potent balance in volts,
Colours must be enhanced field

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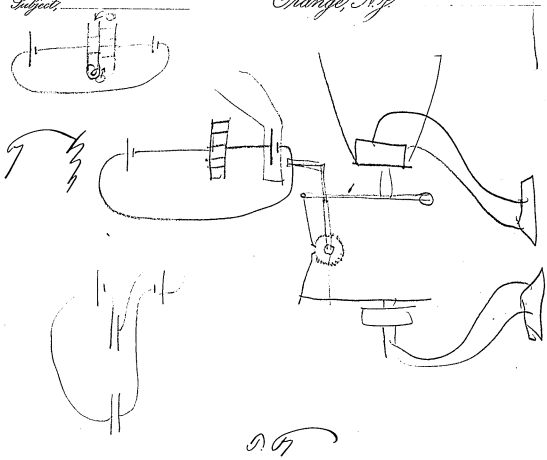
Subject, _____ Orange, N.J.



N G

7 11

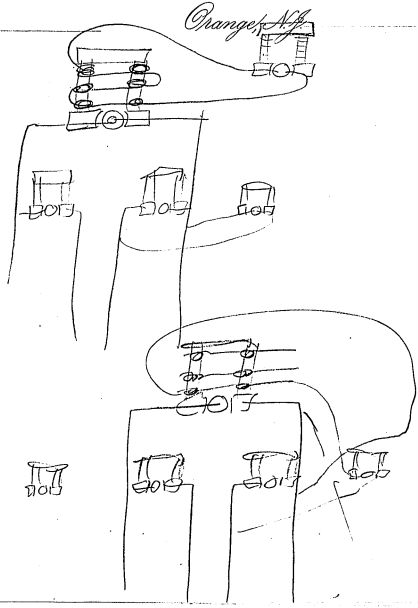
34
34

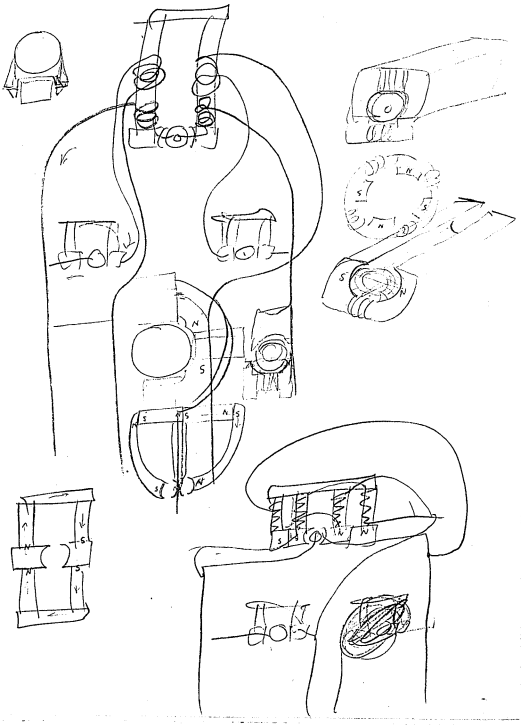
Cable Address "Edison, New York."

From the Laboratory of

Thomas A. Edison.

Subject, Orange, N.J.





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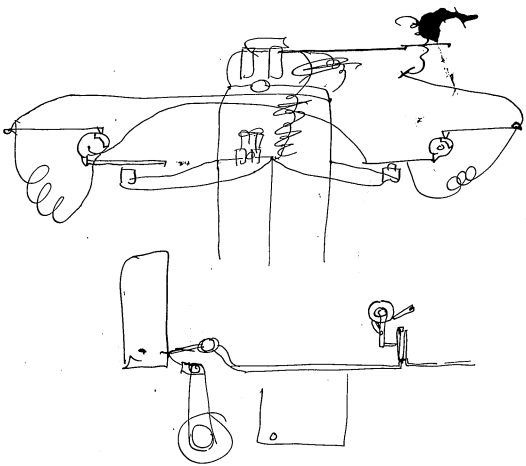

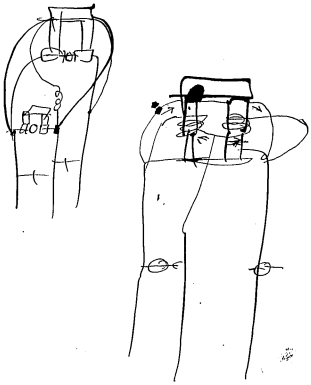

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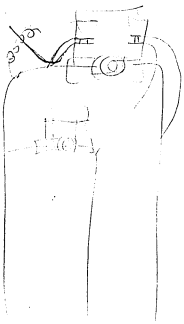
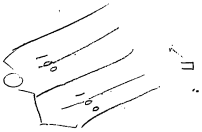
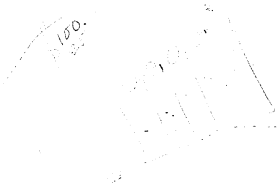
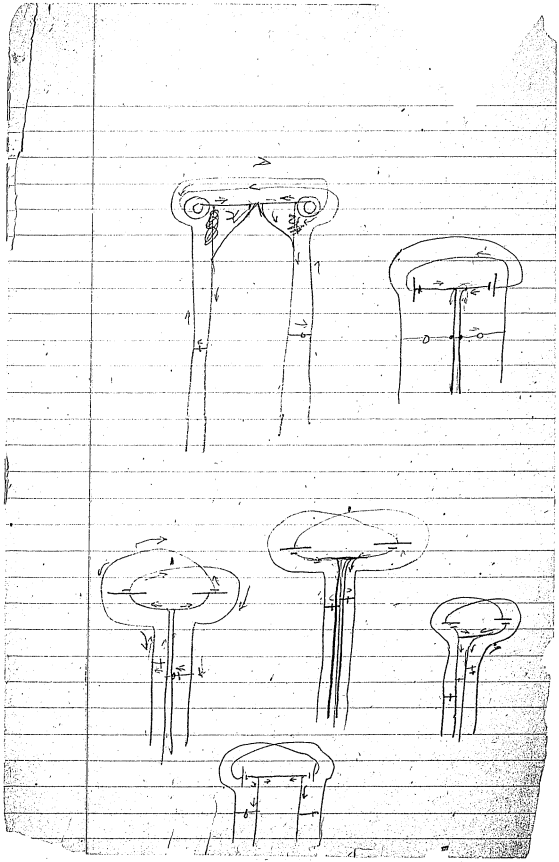
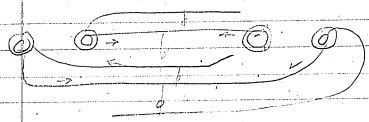


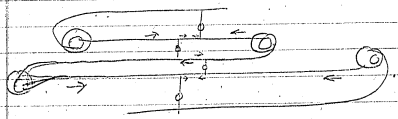
Novelty of grouping
~~[illegible]~~
apparatus
scope
arrangement
Treatment of subjects

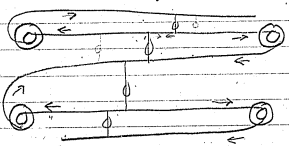


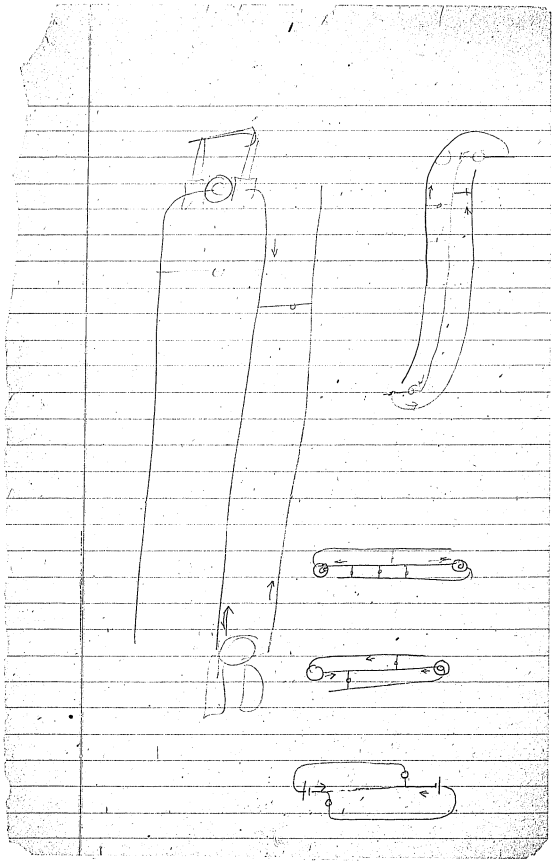


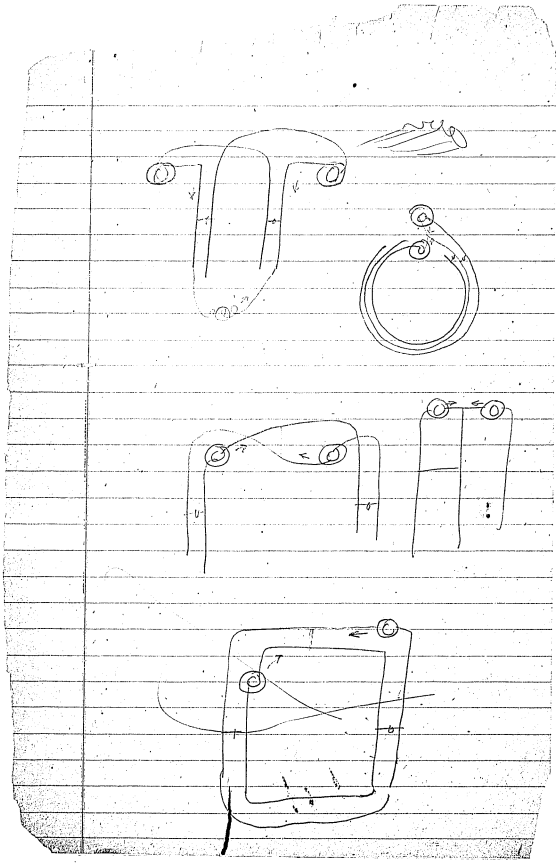


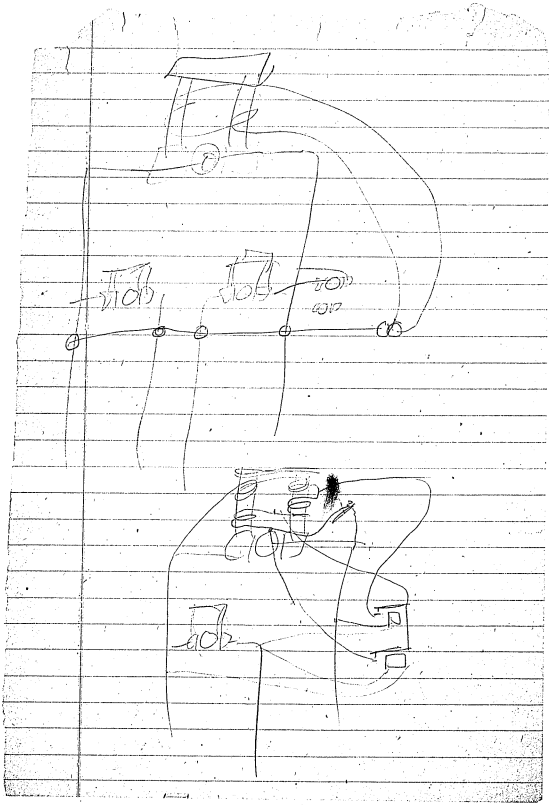


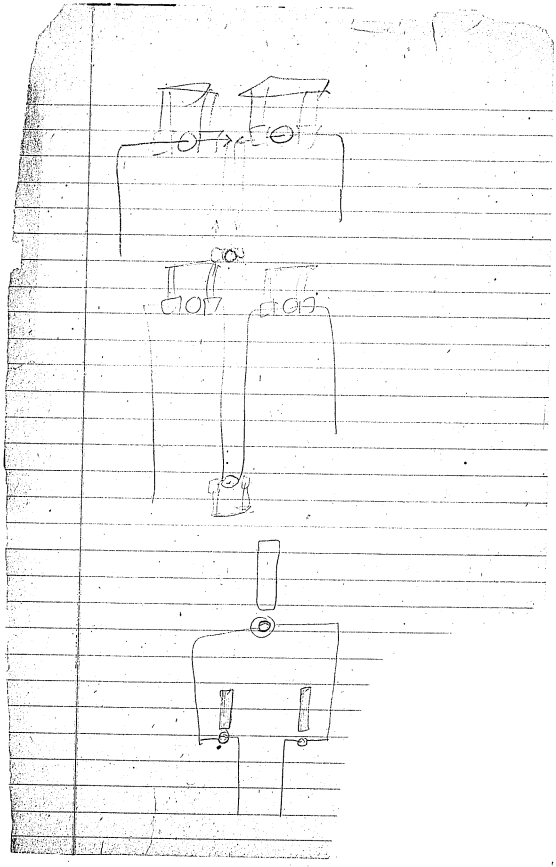


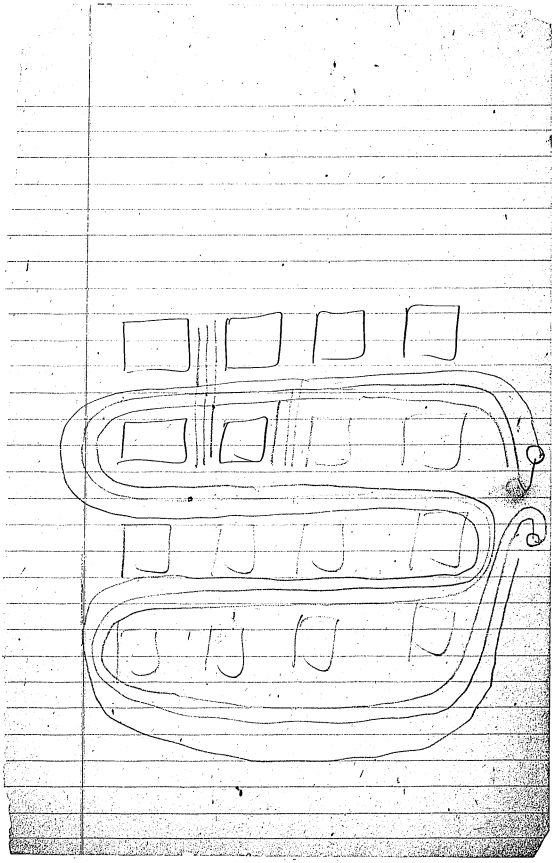


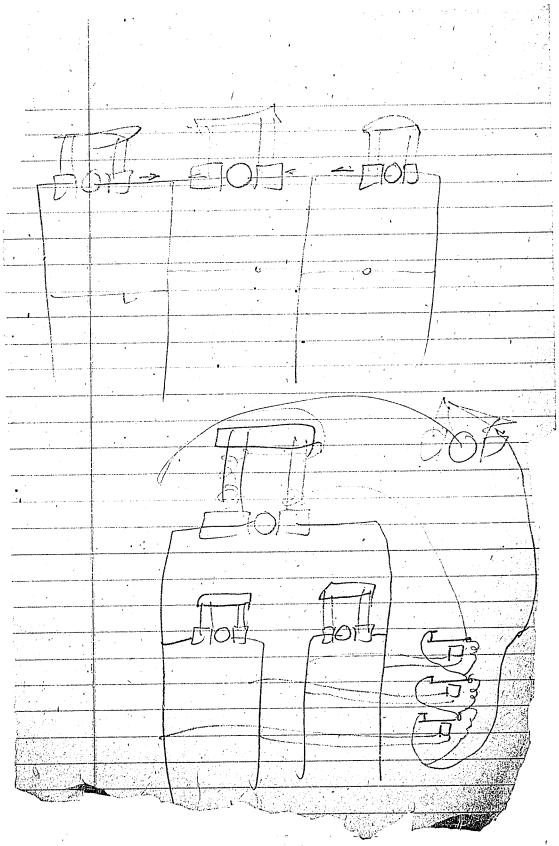


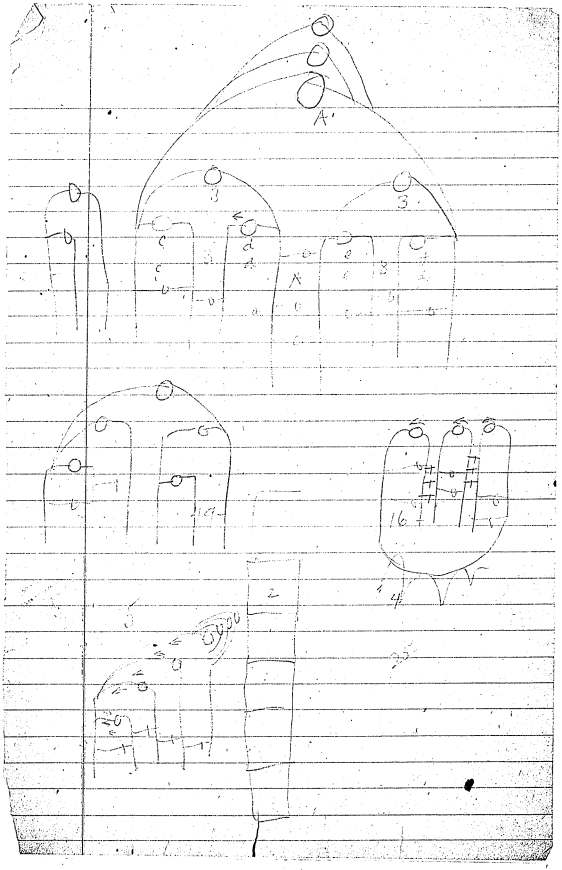


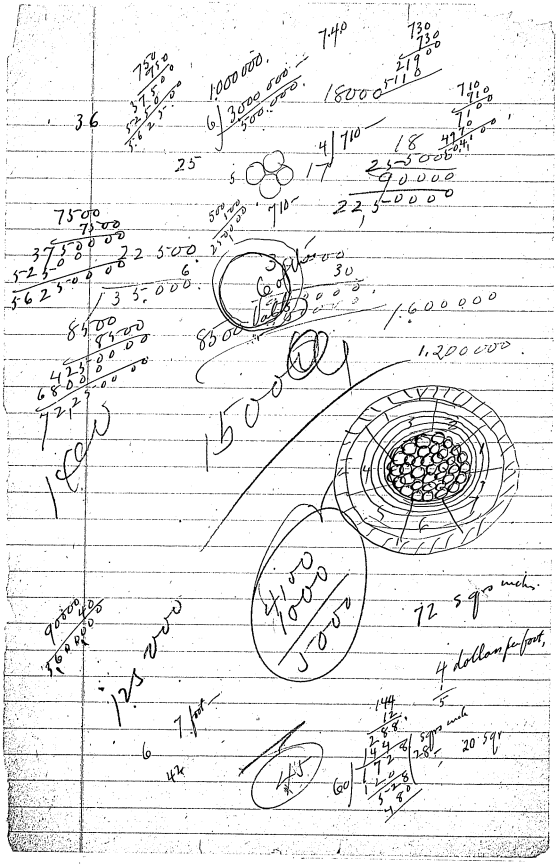


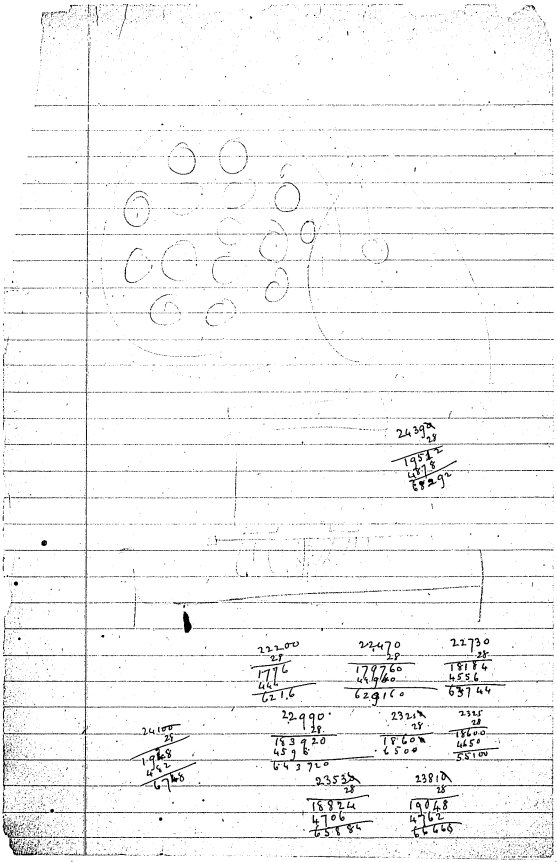









1.200.000.
72 sq inch.
4 dollars a foot,
20 sq
5 sq inch


24392
28
19582
4878
68292
22200
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17776
444
621.6
22470
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179760
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22730
28
18184
4546
637.44
24150
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19968
4242
67768
22990
28
183920
4598
643720
23218
28
18604
6500
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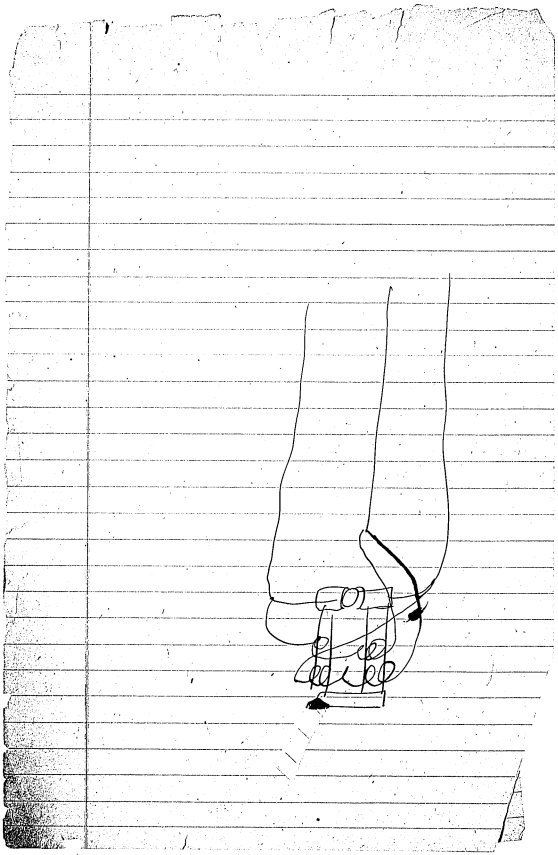
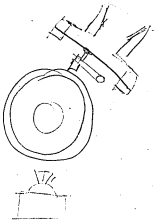
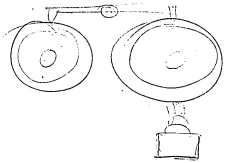
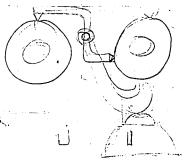
190448
47662
666.60



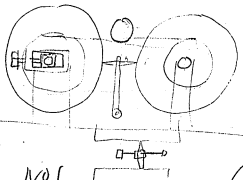


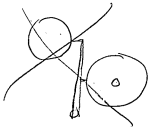




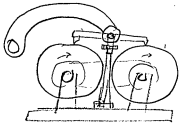
2

Patent No 2

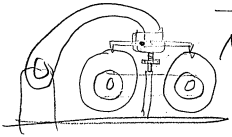




No 1



No 2



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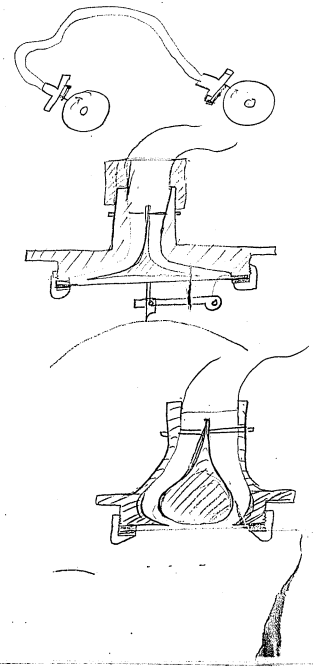


H
Sige A "Electric Light"

Subjects of Walter to Equinoxon

Table of sizes of wires for 2000 volts range by 2000 [illegible] 3 wire,

Static Capacity of some & drop if alternate Currents used,

Costs of converter with double speed when the field magnet is doubled in strength

Drop volts when field bored out $\frac{1}{8}$ at time, [illegible] extra Current necessary bring it back — Doesnt widening of air space raise point of saturation in proportion, which [illegible] by doubling size space & $\frac{1}{4}$ the fixed armature which [illegible] How much Extra field required or if none + Extra Current do it How much,

Supposing Converter loses & yet any gain in Cost Cap relaying it -

Counter Emf in high tension dynamo from low Current to regulate,

Page A "Electric Light"

Use Spark gauge of carbon electrodes
at low pressure where spark doesn't
touch sides tube see if Carbon deposited
also try in HC gas to deposit with spark.

Try two carbon points close together in a Hydrogen
atmosphere jump spark —

Try platinum clamps in Magnesia see if phenol,
make 12 regs with shunk off put in plat crucible
Screw up platinum lights, get life —

Make with the carbon charcoal fibre unknown in —
Eliminated, and then distilled by fractional or
alkalium sulphate — also out fractionate and antiseptic
paper — filter it with alcohol After Sol + —
dentrify, also try the Sodium Stannite.

See if any Solvent for the Charcoal looking residue
from standard oil work — see if it soften,
make some Caramel — Carbonize fed in Sugar
treat Sugar with lime see if phenol.

Soak some filter paper in Sugar strong for
2 days carbonize, also Cream C also
starch. Draw fibre thru die hot see most
lengthening + looking for in die —

Have small mould of say 150 feet put in
stove separate run slowly to highest
attainable heat.

Put in U receptacle goodeen' get vac +
then let — goodeen — then dump above
heat and heat for long time most before
get get vac what can effect amt infinitesimal
area will show depend by the heat put
amount on off at intervals.

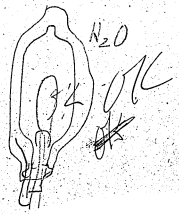
Extra pieces put on by sugar
carbon under pressure (1c)
weight on them =

See if platinum Bichl was
Ever patented foreign
C (1c) 3¢ Au or Ca or
to increase conductivity of
Ends, — ~~Pt~~ Ag or Pt Cu
might do —

~~A sulphur~~ a phosphoric
carbohydrate ~~tablet~~ lamp
after exhausting lamp
heated at 150° General Cut
days the graphite dare with

Patent Lamp if not
already patented,
with Argon residual

See if have patented
in Cooling carbon
as Dr Hand Dedrick



Make 50 pairs of 6½ @ 8½ fibres Each pair to be cut from same slip of bamboo as it comes from China + Carbonized together + then exhaust + seal req + pair + see if valve same very important,

---

Patent Carbonizing both fibre together + cutting same strip those carbonized that are to coordinate

---

El. Light – Patents

Patent showing the edges as well as ends,

Patent Soaking filament in organic + charring – Vac – quick charring

Dope to also pitting in mist of gas + carbonizing at atmospheric or higher pressure by current + well drying agent,

Make not good patent on method of increasing resistance by using more porous vegetable matter such as light woods, willow pine, or (parchmentized) Cellulose jelly moulded + baked around a metal which can be taken away by acid or around slip of soluble matter like sugar molasses – by filament Sylvan etc. Carbonizing – making them hollow also medium thickness Ends after stuff.

~~also~~ Condensing Hg after lamp sealed off

Reducible oxide after charge to permit H to reduce it to form water

Connecting the mercury column in pump to Earth,

also a plat wire where Hg falls thin plat wire to be Earthed

Connected to Cylinder or large surface -

Exhausting lamp tubes cannot connect to Hg = allowed only connected momentarily until lamp finished

Sealing off while burning

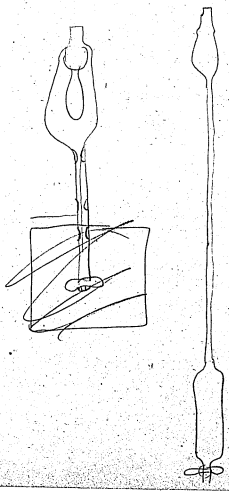
Means for bringing lamp off slowly

Our pump system,

Sethal Dyer has got patent for Carbon Strength & afterwards Sandblasting -

Heating filament up to dull red in Hydrocarbon atmosphere allowed to burn for 4 to 6 hours + watts before putting in lamp but not long enough to deposit carbon

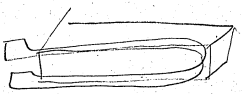
deposit on Carbon Silicon by immersion in Chloride of Boron + Silicon Ethers - Dr Brown



Mix lime with sugar & Coat Carbon locking lime in or magnesia or such which will Coat Carbon & reduce carbon of Carbon - other things besides sugar could be used, this could be put on filament before Carbon also after Carbon & Carbon in Hydrocarbon oil or in Vac or in gas under pressure - may be use Zirconium - object to allow lime or Zirconia to carry moisture of Carbon.

---

put Carbon in Center of a tubular [illegible] 1/4 dia glass fill [illegible] 1/2 area magnesia or lime & Exhaust regular way



Weight to Compress Edges

Potent of heating Carbon below incandescence while Exhausting or after exhausting & before its brot to red -

---

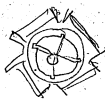
See Dignitt Carbon [illegible] & Moulds also Carbonizing under pressure

Rapid carbon reflecting while burning up lamp in pump = 77

The use of 2 or more Electric Lamps in series having practically the same resistance & volts + candle power also a system of Electric Lamps on 1 ckt of def candle power at same Volts ~~when~~ the Current being in proportion to Candle power.

A new system Case, Main network, feeder regulators on feeders, indicator on feeder, Regulator ckt closer for Dynamo, Dynamos in multiple also groups connected together, Boilers multiple are

7 new machine Connection



sheet punched onide machine

Large Neg surface or P surface inside lamp -

Bismuth ~~antimony~~ or tin as clamp using Bismuth ~~or~~ ant or tin solder for ~~fastening~~ Carbon to clamp -

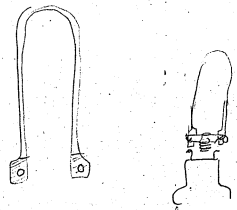
Stretched filament Carbonized ~~ckt~~ panel lid from Carbonizing -

6

1

Uplin to measure
a neg. A all direction
get dimension of [illegible]
direction [illegible]

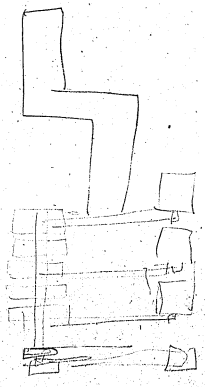
test 16 carbons for
[illegible]
neb. [illegible]
then get volt
See if [illegible] will
fix [illegible] use it

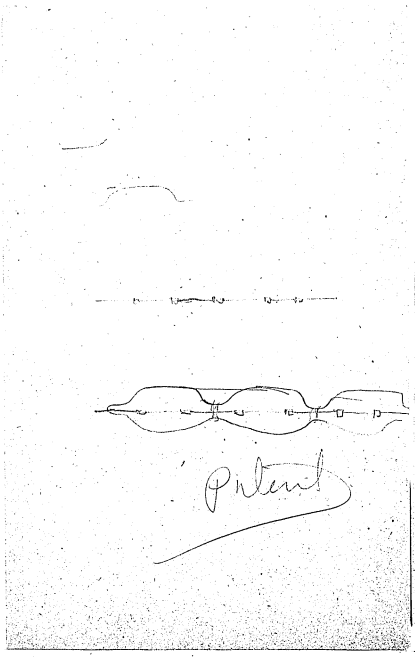


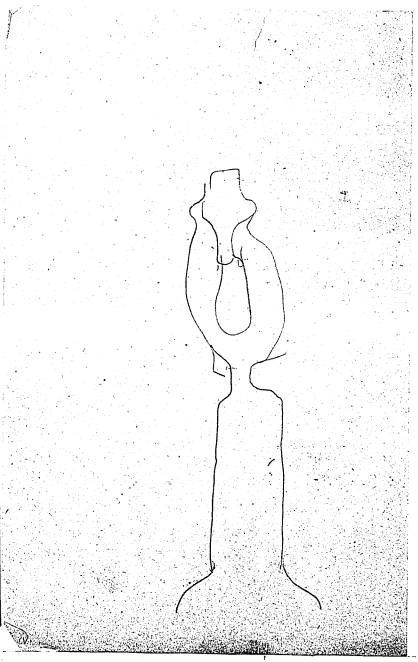
hole in carbon then
plate this hole
will permit hook
go in and to covered
with copper
also can put wire in
+ solder

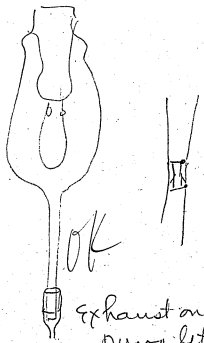
Non washed parchment
gelly in sheet with SO_3
carbonize in amorphous
atmosphere

Carbonize by the Current
a sugar soaked Carbon
in made part by
other than besides
the Sugar but not sol
in the menstrum




Patent





OK

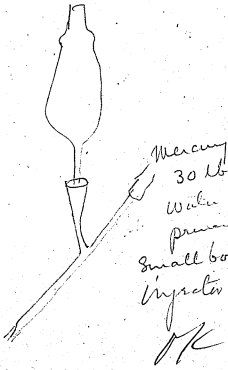
exhaust on hand pump let rubber held tight to atmosphere put in pump & throw down and when pump get good vacuum at well open rubber

to front shove down to open valve

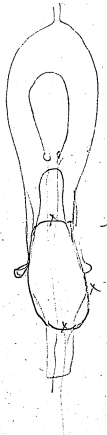
put down around thick end of filament let it melt & Carbon

good

OK



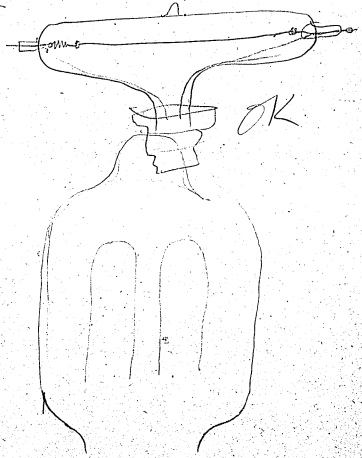
Have some 6 inch fibres
Cut & then cut them into
B filaments Carbonized
Same mould + then
put in lamps measure R
Each after Carbonizing after
bringing to red heat pumps &
use of Crimps & remove
Valve + if they work together
in Series.



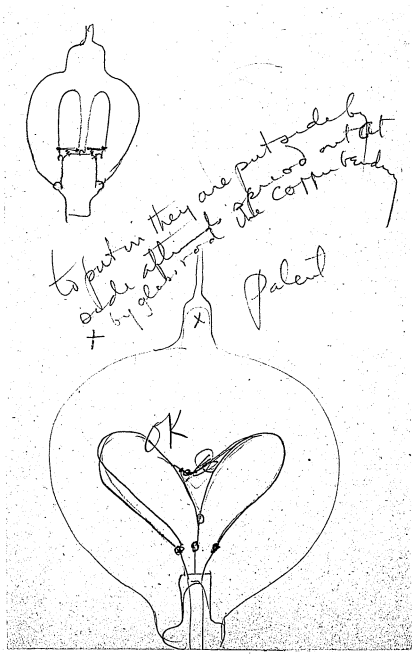
Patent not worked by other

by the rubber smooth with Collar or kissed

Patent this



OK


to put in they are put under by
oxide after a period and at
by gold, and the copper rod
Patent
+
OK

H
Fig A Electrolysis

The object of the invention is to obtain Electrolytic deposits of metal which shall be evenly deposited over the article to be plated upon, & the prevention of increased deposits of metal on edges,
Also to obtain thick deposits of metal free from air holes so that when plates formed of such Electrolytic deposits are turned flat & subjected to great pressure between steel plates. The Electro deposited metal will not give away as is generally the case due to gas bubbles entrained in the deposit
Another object is to prevent minute specks of dirt being caught on the surfaces while the metal is being deposited

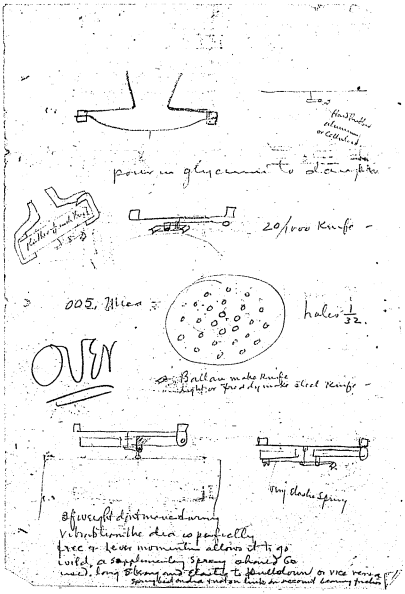
2

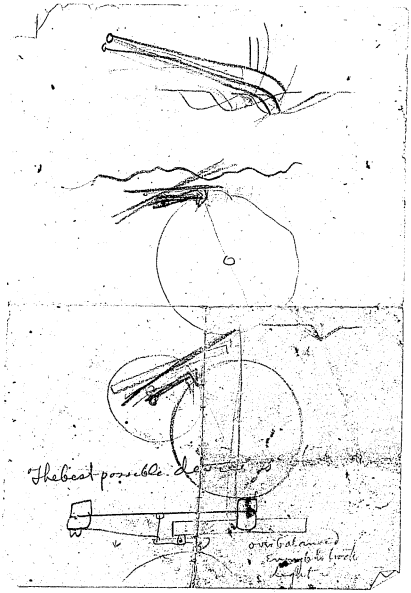
& gradually plated around & over which again gives a porous metal not capable of keeping its shape when subjected to great pressure

4

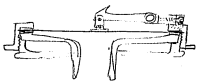
The invention consists in guiding the lines of electricity passing from the Electrolyte so that the deposit takes place very evenly over the whole surface & not concentrated at the Edges as in usual —

If a disc say 10 inches in dia is to be plated over with Copper. The Anode is made of 1/2 diameter of the disc,


power in glycerine to dampen
20/1000 Knife
.005, Mica
holes 1/32.
OVER
Ball can make knife
knife for spindle
steel knife
Tray Clock Spring
Vibrator with the dia so perfectly
free of lever movement allows it to go
Twist, a supplementary spring should go
Spring should make contact to shell drum or vice versa

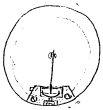

The best possible
over balanced
to the bird
weight

Have the following ~~part~~ drawings made for patent,

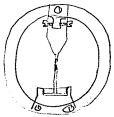


Side view

No 1



No 2



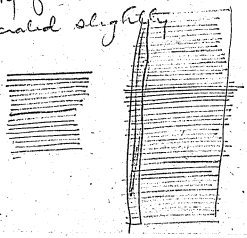
16 Million CM —

12/1000 dia — 96 Million CM —

Stiffness of 12/1000 dia —
inch to Center —
48 springs 12/1000 thick 1" long 1/8 wide

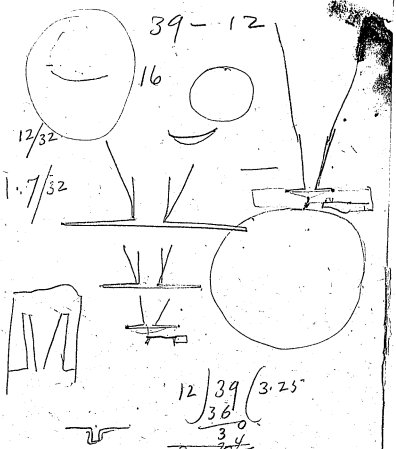
1/2 inch thick

if rigidly fastened at Edges
seperated slightly



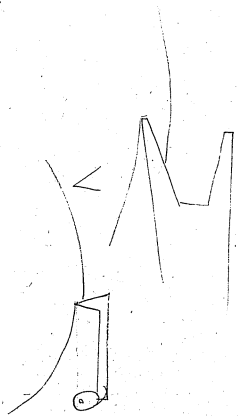
12
48
96
48
57 8.

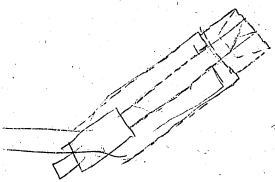
a glass Spring — 12/1000 thick —
put 2 together Equals 4 —
4 together — Equals 16 —
put 7 together Equals 48 —
or 84/1000 of glass 1" long
1/8 wide running to point — is
Same as dia —
1/2 inch long Equals 22/1000
thick —

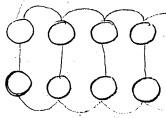


12) 39 (3.25
36
30
34
60

325) 1600 (4.9
1300
3000
2925



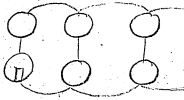




8 Coils

Resis of magnet 5.1 ohms

Speed	E.M.F.	Load (88 CP 110 lamps)
770	108	250
790	104.5	300
800	108	"
780	102	350



6 Coils

Resis. of magnet 6.7 ohms

Speed	E.M.F.	Load
1000	103.5	350
1080	107	"

Resis of the armature = .021 ohm

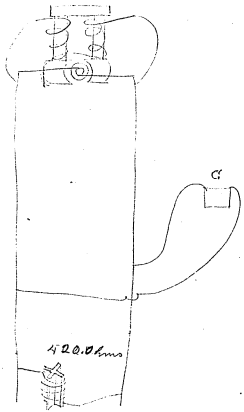
2)118.80
59.40

2)120.90 K
60.45
59.40
2)119.85
59.98
59.87 L
~~119.85~~
~~3993.50~~ ~~126~~
1987
11.980.50

126
120
2520
126
15120

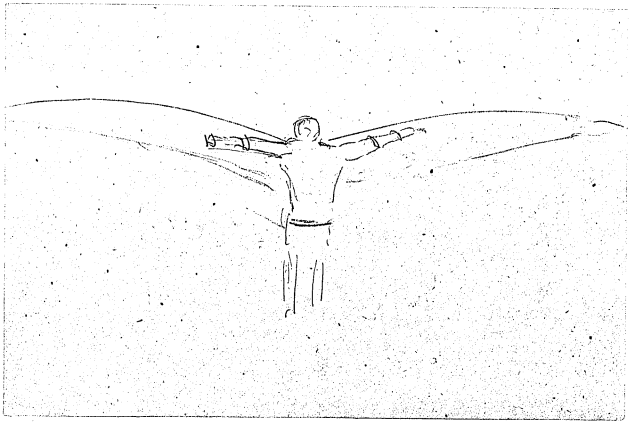
11980
15120
27100

Connections



Test without load rheostat of field magnets &
Speed ~~1400~~

Test with 420. ohms in Shunt Arc 154 x 151
Speed 1404 1372



Harris –

95 Tri
5 grap

Try – 60 Trimedad
40 Japan wax
+ a little soda in Trimedad before mixing
(1/2 gram No. 0)

75 Trimedad – ~~[illegible]~~
25 Cannabis – little soda to Cannabis before mixing
(100 milligrams No. 0)

Then with this mixture use

					Req wax
1 Sepment	50	parts of above	with	Req wax	50
					40
2 " –	60	"	"	"	30
	70	"	"		20
	80	"	"		10
	90	"			

Also with the above

1st Sepment	50	parts of above	– with	50 Japan wax	
	60	"	"	40	"
–	70	"	"	30	
	80	"	"	20	
	90			10	

Same but

50 pts above with	50	parts Sliapate Soda	
	40		"
60	30		"
70	20		"
80	10		
90			

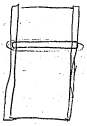
30 grm Modoc ~~fine~~ washed well thru. dutch Bichloride Hg

300 do. with dilute Nitric Hg with free Nitric for a moment only then pan –

30 – do Cyanide Hg with free CyK –

30 do washed Cyanide Hg with free CyK for moment, then Hg globules

perhaps all the gold in pyrites floats –



fine powdered Modoc semi roast. + repowder to break up lumps

Wins on glass with magnet over pyrites to diminish spec gravity –

Grind Modoc fine + mix twice its bulk of equally fine sand, then separate by magnet + pan non magnetic,

30 grm Modoc powder fine – ~~detach~~ well roast semi roast then repowder to break lumps – wash well by rubbing then dry + work with magnet, the non magnet to be panned – object rubbing work w to detach non pan good.

They say Sulphide gold dissolved by Cyanide K =

II

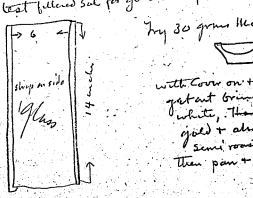
Theory 1 gold is in nuggety condition in pyrites must nuggetized by Heat

To prove use 30 grammes Mercuric ore ground fine in agate + put in HCl Gold in water Gatte. + 1 ounce on glass – dilute liquid + filter portion poured off or ~~transferred~~ bottle to initial yellow + evaporate to dryness.

~~2nd 30 grams ditto HCl Gold same manner~~

~~when transferred to large watch glass~~
treat the trace of gold in it that flooded off ore.

Same with Nitric acid operate same way
test filtered sol for gold with protochloride tin + yellow test



Try 30 grams Mercuric ore very fine powder in

with cover on + hole for Sulphur vapor bring to yellow white, ~~then go to milk~~ gold + also to render it semi roast.
then pan + look with lens

Suck or blow heat air through the wet pyrites finely ground or heat pyrites in tube + blow or better suck air through to oxidize the gold surface sulphide

Sec of sulphides Combine or are reduced by Metallic Rosin

perhaps reason this process
not introduced they speak of
40 mesh where 300 at
least must be used —
They say pyrite Concentrates
gives 80% of an oz Ag
without roasting

Its said in Wallis Ferrocyanide
K dis slowly but this is thrown
down by FeSulphate —

See if 200 mesh arsenic pyrites
in presence of slime with air
wont oxidize the Sulphide hummaned
into the gold —

Try Cyanide Hg dissolved in
Cyanide K — with powdered unroasted
pyrites see if brightens —
Vide Aaron —

See if with Salt, Sul Na etc
warm + calm or with air going
through can written the pyrites
if so the very fine skin + dust
hummaned in the gold can be
made soluble + brightened

Try Cyanide K on washed
190 mesh pyrite for several
hours 1% Solution
CyK should not be alkaline
+ pyrites not acted —
See E Mgnl 544 1889 at
house — No Record

Bind Lime + plumbago
Sigram + Beeswax + Linseed —
put on hot — do with plumbago

Bill St. + plumbago hot,
Shoemakers wax, then plugs or mixed
put on hot,

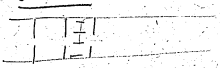
Guard board keeps sand
and pulleys —

Magnetite roasted to ferric
Enlarge by 5% salt.
Try this work for floor
test if magnetite will form
by magnet.

Rubber coat then
fumes Chl Sul —
ditto Linseed oil —

ditto Rubber with Sulphur
— Bromplate — dry found
well then hot ~~[illegible]~~
plate at 350 @ 400 Fahr
applied to Vulcanize —

Japan Varnish mixed with
Lampblack — do paper pulp —
do starch.

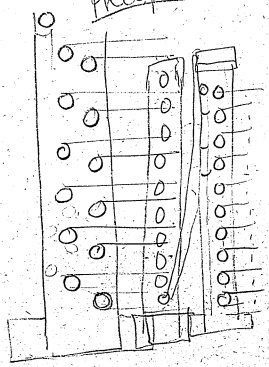


Starch Jute —
Starch Soda
gum Dextrin.

Beeswax + plumbago hot plate.

New design

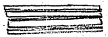
Phelps



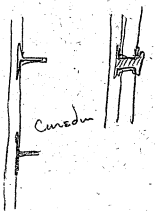
12)140(11
12
20

6 4 6 4

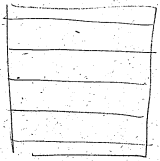
Belt



1/32 Rubber
1/32 duck
4-ply



Curedon



Cloth stuck on this way

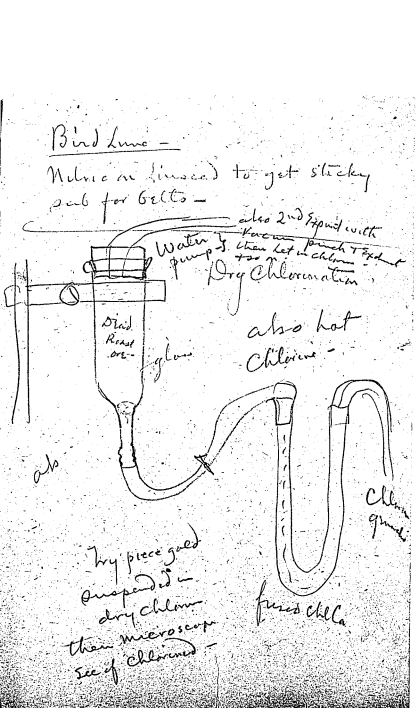
Common duck made up of thin duck & kept constantly (?) but it wears on cotton

Raw Hide belt.

New Idea, Nearly dead roast
then run through magnet this
will take out any partical ~~roast~~
sulphides or metallic iron
then the magnetic can be
roasted separate this roasted
Chlorine —

Layer full width of then duck over
belt + painted —
Bird Lime from oxidized linseed oil + Milno
with flumbago —
Trough with flumbago below drum
grease + pabgo —
Hot glue =
Leather belt.

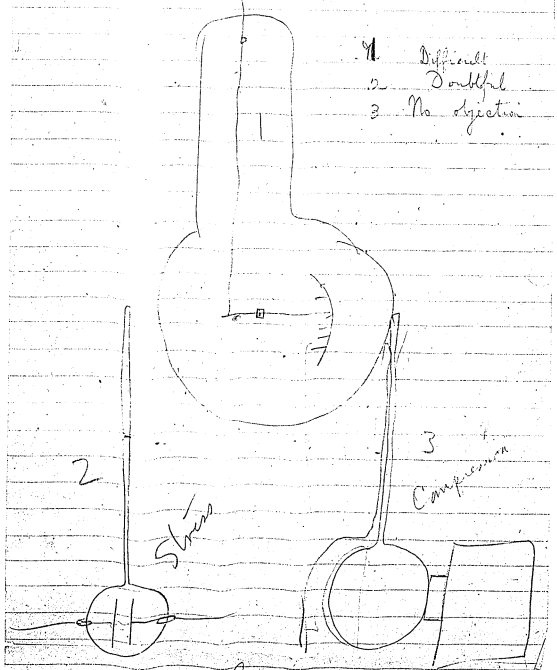
Bird Lime —
Nitric on linseed to get sticky
pab for belts —



Ma

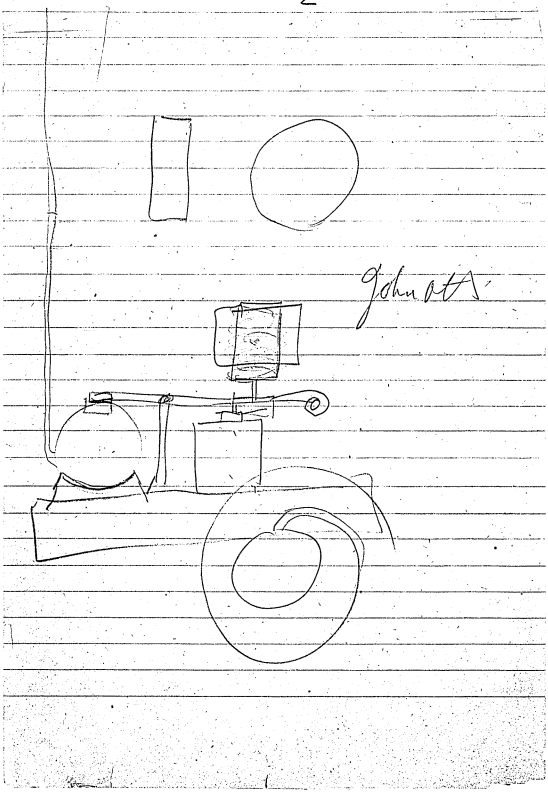
Ammeter

1 Difficult
2 Doubtful
3 No injection



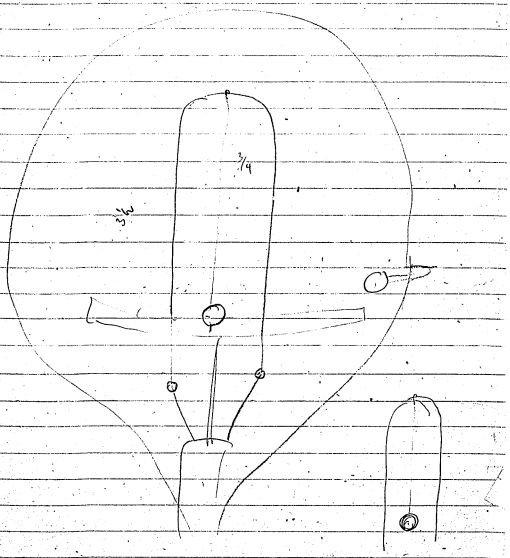
Sulphate Wolframate of Cadmium

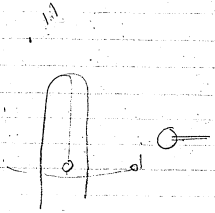
2



Voltmeter 1

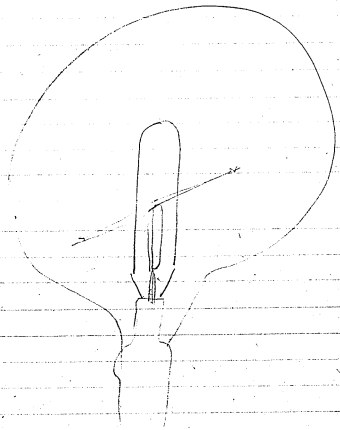
Jog Force



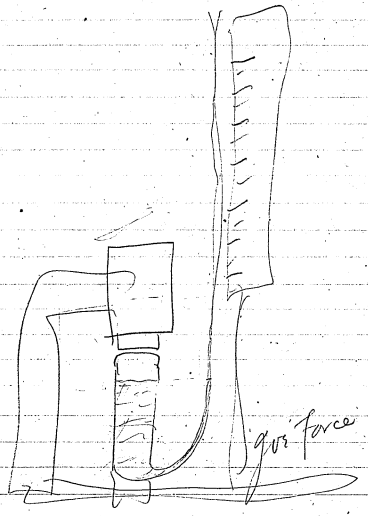


Ammeter 3

Gas Force.



Chronometer 4

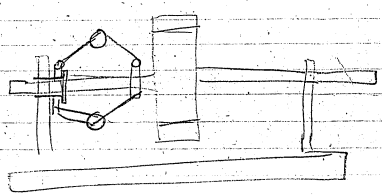


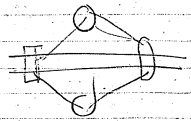
Chronometer

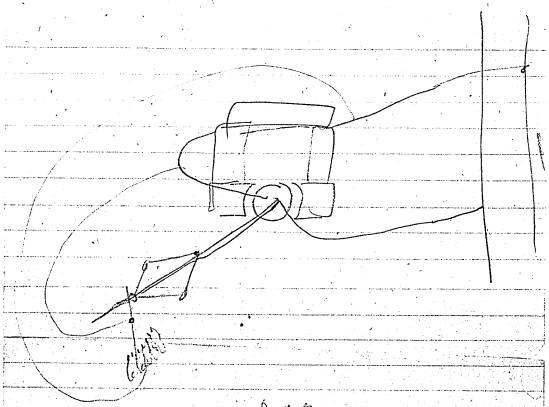
Objections raised – Not suited to present design of motor.

pulley arrangement out of field

X01



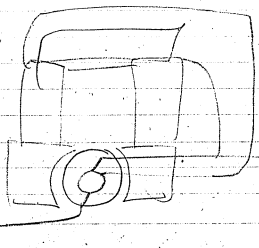




No 2

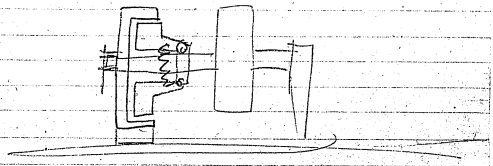
Objections. That the switching does not suit all loads, that it is apt to spark.

No 3.



Objections. Danger of faulting contact of field band

No 4

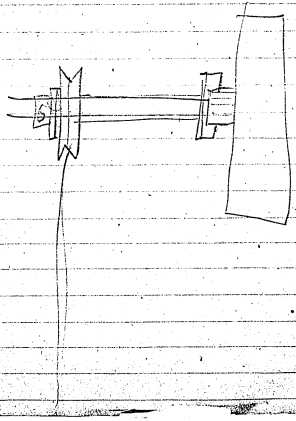


Objection: that it does not suit all loads.

fmil

No

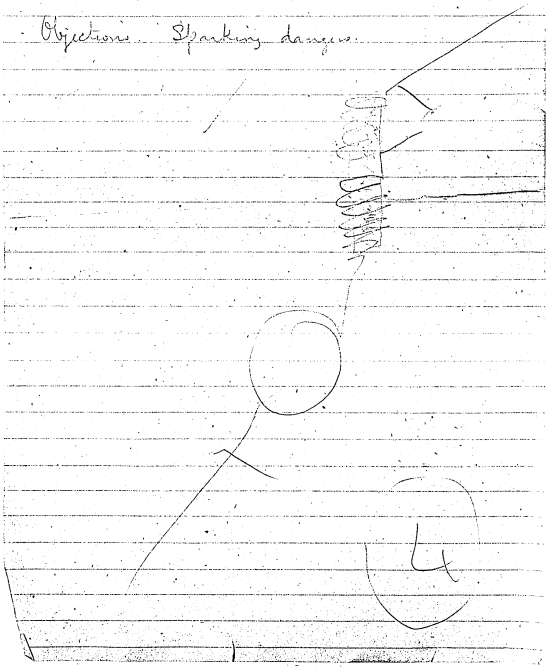
No objections



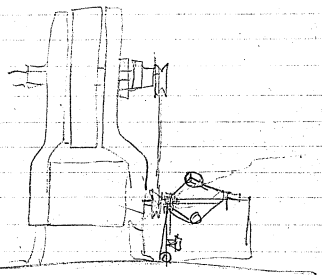
~~Fig 4~~ (6) I

1500 180

Objections. Sparking danger.



No 6 II

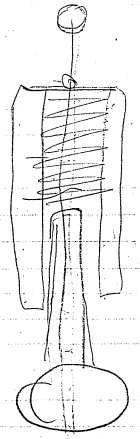


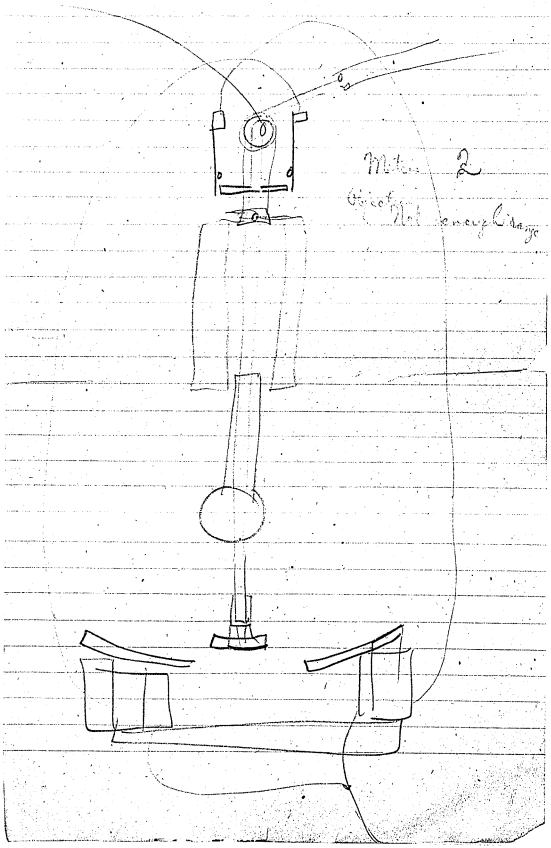
No 4

Metes

Scheme 1

Objection not large enough

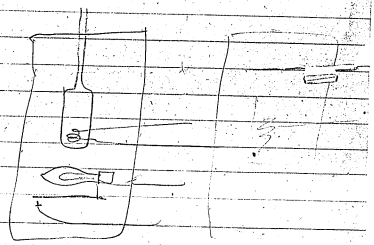


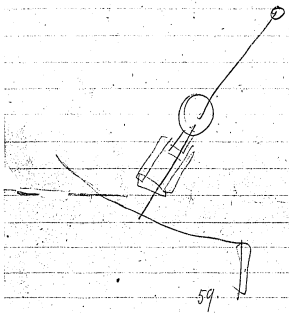

10
Motor 2

Meters 3

Objection

varies as C^2



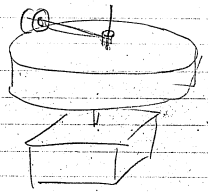


60 — 40 —

Meter 4

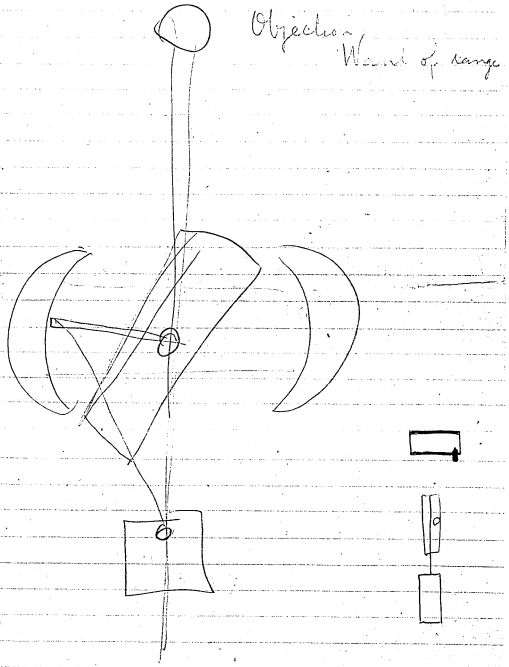
Trevelyan Rocher

No definite objection.

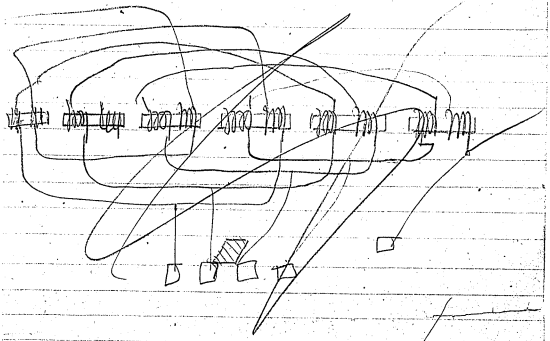


Melen 5

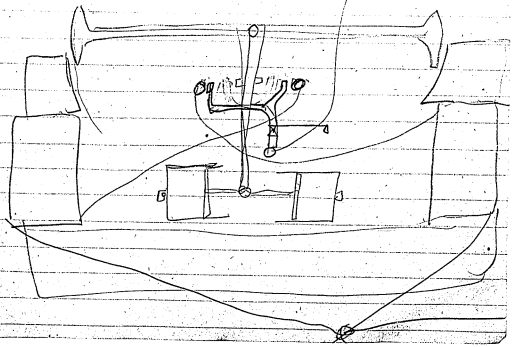
Objection
Weard of range



Meter 6

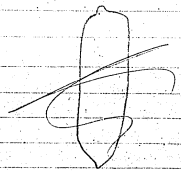


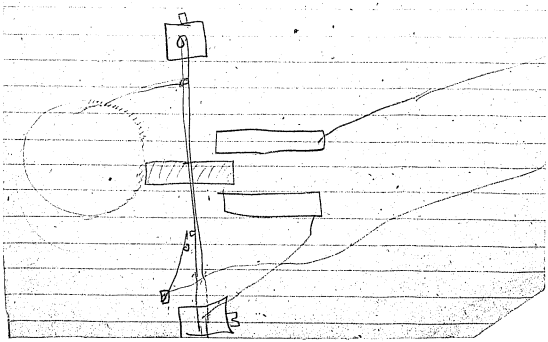
No definite objection



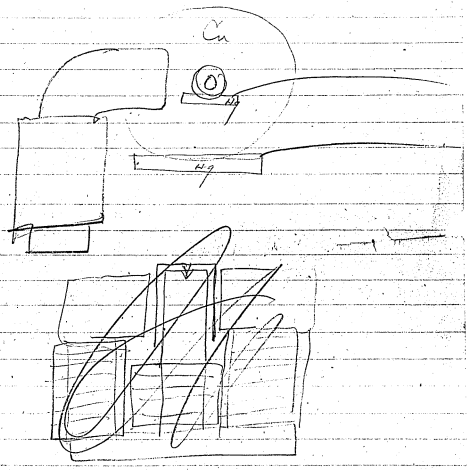
Meter 8

No definite objection





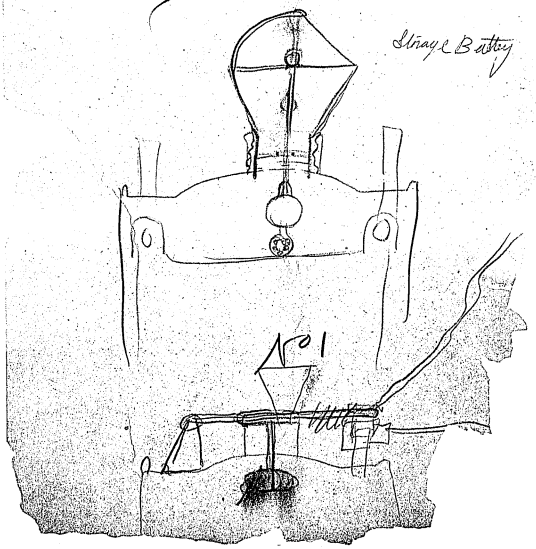
Meter 9



Objection Mercury contact?

Feeding Off

Stage Battery



48
858
41) 906 (-

Storage Battery
2 | 429
214

41- 3 | 429
858

4 | 50
1,2,5

3.3/4

.50
+ 2.5
3.75

4 -

16
4
5 | 64
4

24" Cube

54

78

1/4 off Cubed

1/8 of sides - 18 1/4

11 3/4 deep

96 lb.

429 - 510

2144

428

42 / 1728 (41

168

48

5.25 - 4 / 96

24

7.5

25

510

11 75

18 25

587 5

2350

990

1175

2144 375

1825

525

9125

3650

9125

95812 5

429 / 54

41 / 78 (

2

56 / 1728 (30.9

168

480

4

Blackmass.
Vol 2 895 action ClZn on Epichlorhydrin

Benzamide
Deposit Ulmic.
Easy — Vol 1 539 —

Bebirine —
gives black sub when heated
Chromic a Vol 1 526

Action Bromine on Stearic acid Brown mass
DWM — Vol V 416 —

Thymol P Vol V 792.

Salicin DWM Vol V 145

Brown sub heating melts wet
KOhydrate = Vol V 152

Quinine DWM — Vol V. 17

Brown spongy mass Caprylic
Aldehyde heated with KO.
Vol 1 746

Chenodin Changed by Chlorine to
Blackmass instantly. also
HCl & Chlorate K gave tough mass.
Vol 1 870

Oil Lemon KO separate Brown
substance Vol 1 1001

Brown Mass action Iodine on
Copaiba Oil. Vol 2 16

[redacted] Falbergs Natrie –

Turpentine ng
Benzol ng
Benzine ng
Glycerin ng
Ether ng
Gasolene ng –
Naptha ng

Furfural 95 pct dis leaves few fine particles may be burnt parts =

Falberg Natrie –
Pyridin about 65 pct leaves more particles than Furfural.

Toluidin about 25 pct T is somewhat thick =

Styrol bidnt big too viscous –
Carbon-tetra-chloride ng
Methylene-dibenzol a little –
Valeramine Ether ng
Hypnon – a little
Myrtol ng

Methyl Al durdens put very considerable plug by refrigeration

Falberg Matrix

Aldehyde Concr 65 pct –

" Concr – 60 "

10 % Tetrethylamine as Hydr. about 80 pct
& think makes reddish Color – & deep
strong & than any previously Tried.

Isobutylamine 30 pct. very light yellow
Liber alcohol

Trimethylamine same as Tetrethylamine
80 pct same Color –

Carbon disulphide 1 kg –

Oil Cinnamon 1 g –

Cinnamal 1 kg –

Thalberg Matrix –

Safrol 1 kg

Cymal 1 kg –

Cinnamon 1 kg

Vanillin 1 kg –

Piccolin 50 pct.

Dermal)

Oedema Trop tissue)

Stag a get 2 lbs of

Canary seed

Chewing

Something a hayseed

Also can get to Drug store get

25c worth Lycopodium powder

What I want is the very

finest seeds I can get

Iodoform

Bromal Hydrate

× Iodide Potassium

× Trichlorophenol.

× Napthalene

× Benzoic acid,

× Betal (napthalal)

Chrysene
Pyrene
Chloranil
x Succinic acid

Tungstate Soda
Sulphide Soda
CaCl

Tungstate Soda
Silicate Soda
CaCl

Tungstate Soda
Zincate Soda
CaCl

Tungstate Soda
Borate Soda
Ca Cl

Tungstate Soda
Chlorate Soda
Ca Cl

Tungstate Soda
Aluminate Soda
Ca Cl

Tungstate Soda
Manganate Soda
Ca Cl

Tungstate Soda
Iodate Soda
Ch Cl Ca

Tungstate Soda
Nitrate Soda

Tungstate Soda
Aluminate Soda
Ch Cl Ca

Tungstate Soda
Chromate Soda
Ca Cl

Tungstate Soda
Phosphate Soda
Chloride Calcium

Tungstate Soda
Arsenate Soda
Chl. Calcium

Tungstate Soda
Vanadate Soda
Chl. Calcium

Tungstate Soda
Chloride Lime

Uranate Soda
Chl Lime

Tung Soda
Chl Lime

Moly Soda
Chl Lime

Tungstate Soda
Chloride Calcium
Antimoniate Soda

√ Wood Alcohol – absolute, good

~~Aniline CP Merck~~ –

√ Chloroform –

– Butylchloral,

√ Acetone treated with Ammonia

√ Acetone,

√ Benzaldehyde –

√ Aldehyde –

+ Ethyl Alcohol 95% –

√ Isobutylamine –

√ Ortho Kresol –

× Strontium Salicylate got

Barium got "

~~Chloroform~~ "

Aluminum not got

[illegible] not got

Cerium " "

Potassium got

× Lithium got

× Mercury got

× Zinc got

Gum Tragacanth 3 oz
" " Acacia 3 oz
+ Extract Catechu 3 oz
Licorice 3 oz
× Dextrin 3 oz
× Arrowroot 2 oz
× Cane Sugar 3 oz
Fresh burnt lime 1/2 lb

Chloride Ammonia ×
Cyanide Ammonium
Fluoride Sodium
Nitrate Barium ×
Nitrate Iron 1 lb
Alum
Bromide Ammonium ×
Iodide "
Bromide Sodium ×
Nitrate Strontia ×

Cylinder

Jed make cylinders highly baffled
upfacing with no grease

✓ Copper	✓ Brass gold plated
✓ ~~Brass~~ Silvered plated,	✓ ~~Brass~~ ~~Copper~~ Silver plated at Bluill amalgamated with Mercury
✓ Zinc	
✓ Cadmium –	
✓ Lead	✓ Graphite –
✓ Iron –	
~~Copper Nickel~~	Ferromanganese
✓ Nickel –	Arsenic
✓ ~~Brass~~ ~~Copper~~ Cobalt plated –	
✓ Bismuth	✓ Steel
✓ Antimony	
✓ Tin – ✓	
✓ Aluminum	
✓ Magnesium	
✓ Thallium	

Powder up the Mercuria hyprate ~~a~~
Reguri –

Powder up very fine the following
Carbonate ditha ✓
Carbonate Soda Dry crystals ✓ Powd
Sulphate Potash ✓
Chloride "
Chloride Sodium table salt ✓
Nitrate of Potash Deliquescent
Phosphate Soda ✓
Borax ✓
Sulphate Zinc – ✓
Iodide Cadmium ✓
Ferrocyanide Potash.
Sulphate Nickel – ✓
Bromide Potash ✓

#1

Carbonate Strontium 20 grams
1.5 C.C. water pressed out good powder to use

#2

Carbonate strontium 20 grams
1.5 C.C. water pressed o[illegible] harder than #1 not to use

#3

Carbonate strontium 20 grams.
2 C.C. water pressed fine not so hard as #2

#4

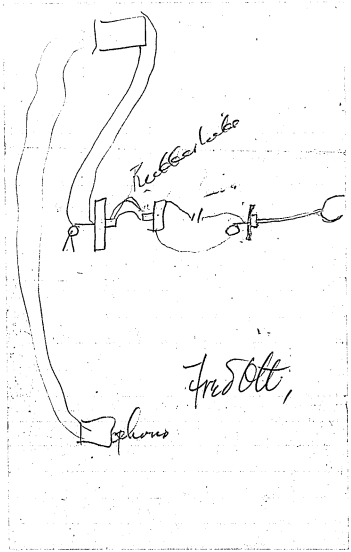
Carbonate strontium 20 grams
2.5 C.C. water pressed out very hard

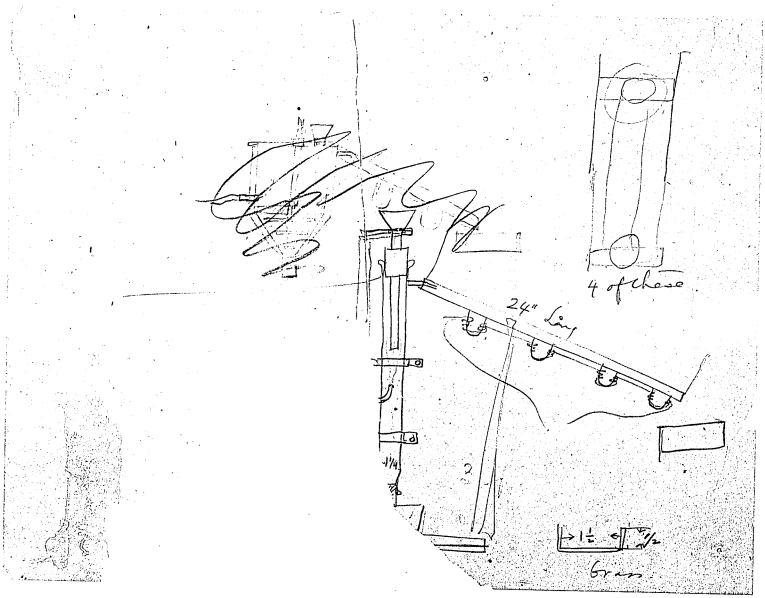
#5

Carbonate strontium 20 grams
3 C.C. water to wet squeezed out

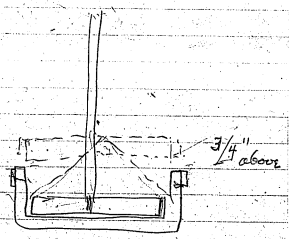
pressed 300 atm
graphite the mold but not to thick

Rhodium	1 gr Vial Powder	15.00	1g
Ruthenium	1 gr Vial brittle	5.00	1g
Beryllium	1 gr Vial	22.00	broken stick
Platinum Oxidum			
Palladium	Metallic 1 gr Vial	.75	

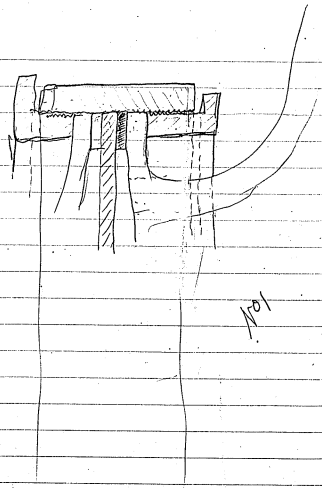

Fred Ott,
Bellows


4 of these
24" Lin
1 1/4
1 1/2
1 1/2
Grin

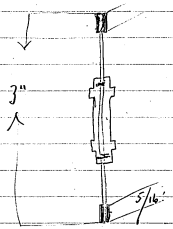
Yolmott,



gradually fed upward
Load dumped in the
Center —

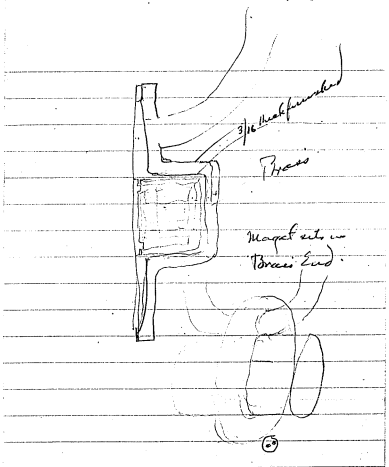


No 1



No 1

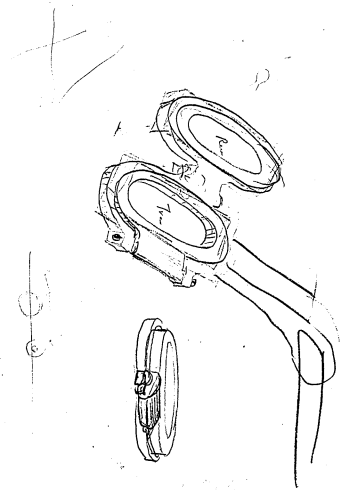
#1



EDISON LAMP COMPANY.

THOMAS A. EDISON, President.
FRANCIS R. UPTON, Gen'l M'g'r & Treas.

HARRISON, N. J., ... 188



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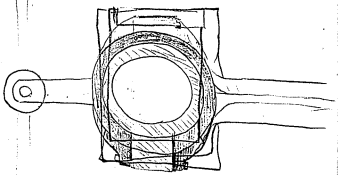
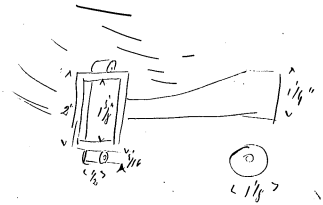
THOMAS A. EDISON, President.
FRANCIS R. UPTON, Gen'l M'g'r & Treas.

HARRISON, N. J., ... 188

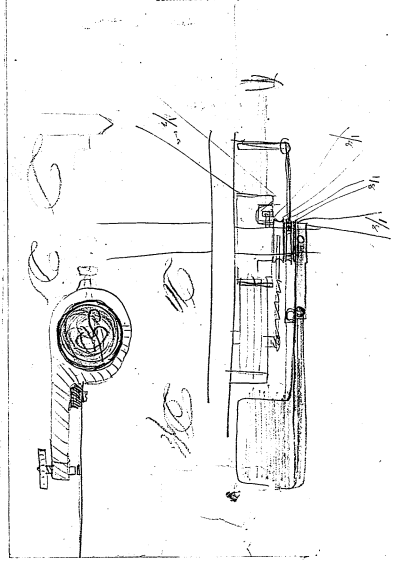



1 1/4"
2"
1 1/4"
1/2
1 1/16
1 1/8

EDISON LAMP COMPANY.

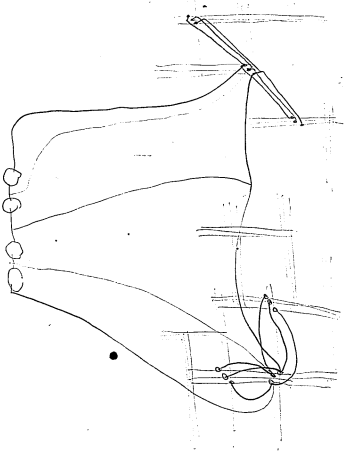
THOMAS A. EDISON, President.
FRANCIS R. UPTON, Gen'l M'g'r & Treas.

HARRISON, N. J., ... 188

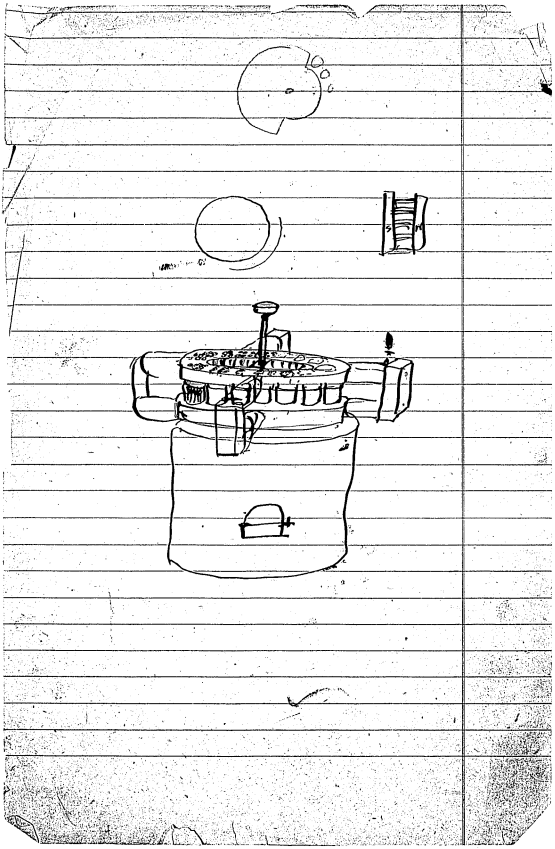


The Edison Lamp Co.,

Harrison, N. J., ... 188



4/4
120/80 = 1.6/80
x 120·80/1.6
1/320 | 64
30
26
54



31 — 41.54
32 42.84
33 44.14
34 45.44
35 46.74
36 48.09
37 49.34
38 50.64
39 51.94
40 53.24
41 54.54
42 55.84

adding on 12 ft
friction increases 1.34 times —
from 15" to 16.88 —

16" — now ½" to foot — 196 area inches
12 ft more 6" — 20" 400 " "
friction of cohale increased to
area increase from 16 To
17.32 times 16 cut area co
doubled —

30 ft — 14" 196 area — 27%
42 — 20 400 — 7% — 13%
54 26 676 " — 14%
66 — 32 1024 " 21%

454 ft surface on the
surface —
65376 inches —

are of 14" 30 ft 196 inches $\frac{1}{333rd}$ of
whole wave — 6 ft away
12 ft added $\frac{1}{163rd}$ part of wave 7% Echo
12 more $\frac{1}{96th}$ of wave 14
12 more $\frac{1}{63rd}$ of wave added 21% more

If 14" — 10 calf 1 Energy
12 ft added = " 2 " 25% louder
12 ft more 3.46 "
12 ft more 5.58 —

~~He found that wal~~

Doubling the length of Funnel
will double the sound at 6 ft
from mouth 66 ft long —

6 ft accuracy

now — 276

12 ft Error - 138 of the

Ground - with only 7/10

more friction —

138th of the

ground at 6 ft

2.77 | 10290 (3788 -
8310
1980
1680
2286
2310

18
17
36
36
216
79
94
1512
1796

178
102
1020 ft

144 | 400 | 2.77
288
1120
1080
120
120

	Surface	area	
1st foot,	21	53	2.52
2	33	125	3.80
3	45	229	5.10
4	57	365	6.48
5	69	533	7.72
6			9.00
7			10.32
8			11 62
9			12.92
10			14 22
11	15 52		
12	16 82		
13	18 12		
14	19 42		
15	20.72		
16	22 00		
17	23 32		
18	24 62		
19	25.92		
20	27 22		
21	28.52		
22	29.82		
23	31.12		
24	32.42		
25	33.72		
26	35.00		
27	36.32		
28	37.62		
29	38.92		
30	40 22		

~~Suggested~~

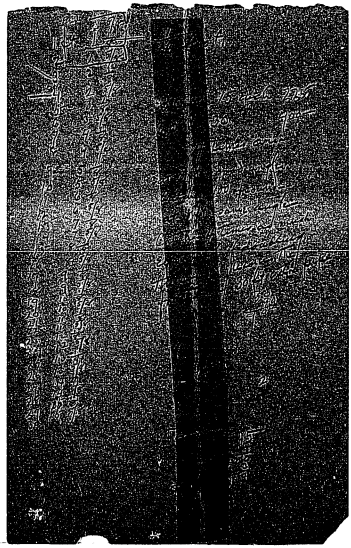
16 times the friction on 1st ft as in 1st ft beg End

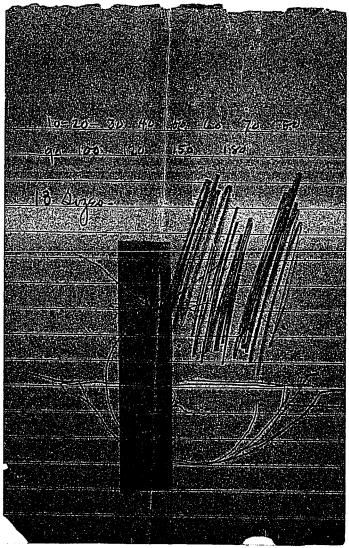
~~(10) friction [illegible]~~

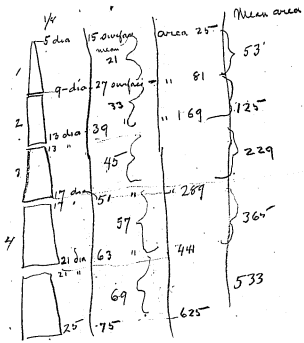
~~Every 2 ft [illegible]~~

~~[illegible] as com~~

Starting at big end friction increases 10 times Every 2 ft - towards small end within the






1/4
5 dia
9 dia
13 dia
17 dia
21 dia
25
15 surface
21
27 surface
33
39
45
51
57
63
69
75
area 25
81
169
289
441
625
Mean area
53
125
229
361
533

Try sulphuret of Potassium with lead plates, also with lead and Carbon – also with lead plates coated with red lead also with one lead plate and a Carbon plate coated with red lead also with peroxide lead.

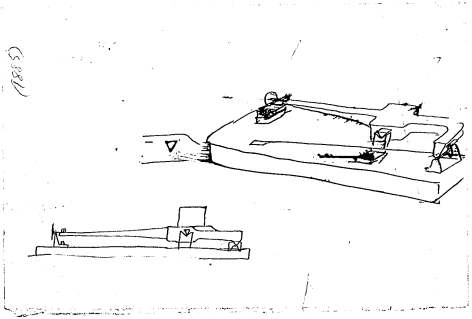
Try Carbon plate with following metals – Cadmium Copper iron Tin Zinc Antimony then Iry varying changes on flour Sulphur – in alkaline Sol's

The Zinc Sulphide dissolves in the Solution & Cement Carbon, The Copper + Silver gives porous coating sulphide Cement weak Carbon – Lead gives dense sulphide lead Cadmium dense, but Cement Carbon some time –

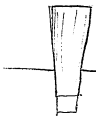
You can raise the Sulphide to a higher state, hence might Sulphidize two lead plates + then Cement would raise one + lower the other in Solution Sulphuret of potassium with excess of potash – try Sulphurizing other metals iron Especially

Formula Sulphuret Potassium Equal weight Caustic Potash are mixed + heated gradually – florence flask till whole fused mixed + Sulphur in excess commence Sublime to Cooled + dissolved in H_2O to a strong Sol which after standing deposits clear – perhaps Cement + Cement beneath –

Cement iron plates with Oxides of iron
Try Carbon plates one of which coated with peroxide lead



Participant	Formulated	(1993) Unformulated	Detailed assembl



peg plug

piece Sifrante
Sfrato concentrated
on peg
pegs turned from
scraps -
100 pegs (min)

Band inch stick.
Maple

6 inch circle.

2 feet long

(Rauch)

34 – [illegible] put out (?) 20 deg run to 500 deg 350 (1883)
Raidint prelim 350 2 days – Rim to 500 1 day
treated 17 48 hours – Rim to 500 1 day
then final –

35 Prelim Raidtn 350 2 days treated 17 72 hours
500 deg 1 day then final –

36 – Raidtn 350 2 days 17 96 hours
500 for 1 day then final –

37 – 300 deg Raidtn 3 days – 17 150 hours
500 deg 1 day then final

38 Prelim in forms 350 deg 1 day –
treated 6 then 17 500 then final

39 – Done straight prelim & bottom shirt
wadding Carly 350 deg 1 day –
17 12 hours – 450 deg & finalled

40 – In forms 350 1 day 17 1 day
then run to 500 1 day then in
17 1 day – then to 500 deg 1 day
then final –

41 – Same – 40 but one more time in 17

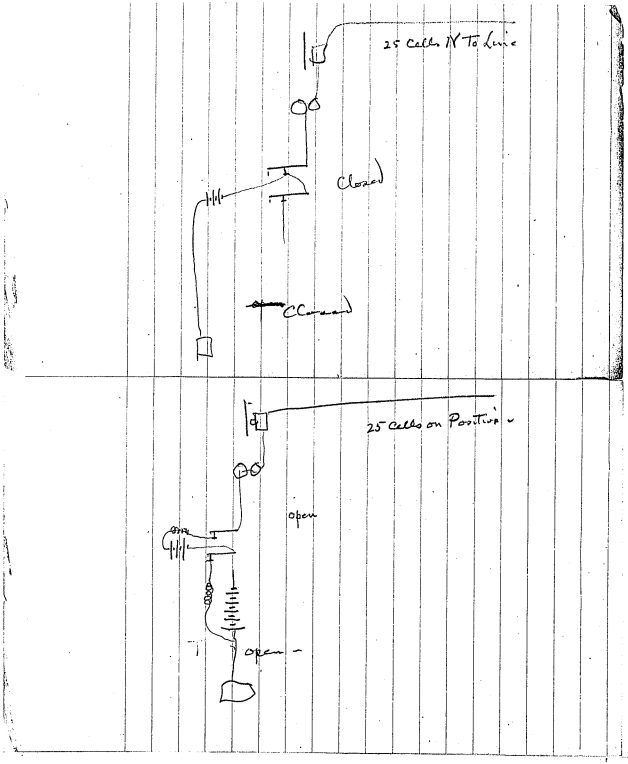
42 – Same way but 4 times in 17 (1883)

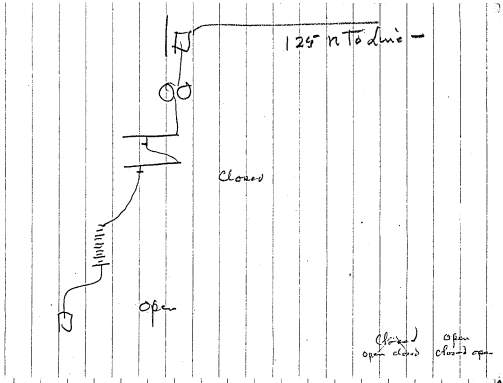
43 – Round fibre 350 in forms 1 day
17 1 day 500 deg 1 day & final

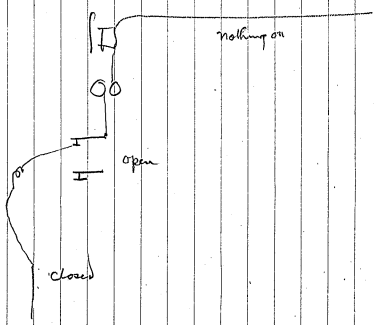
44 Reg prelim 550 deg 1 day
then final no 17 –

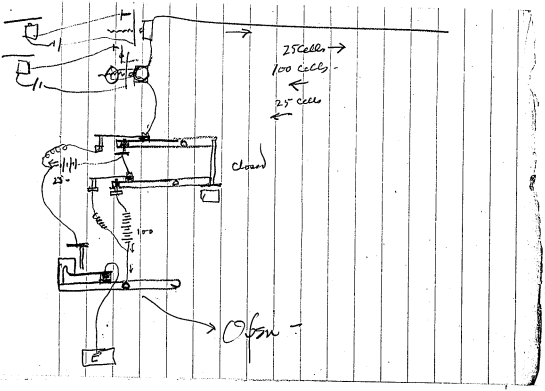
45. Round fibre in 17 one day
then prelim 350 1 day – then in 17
1 day – Reprelim 575 deg 1 day
then final –

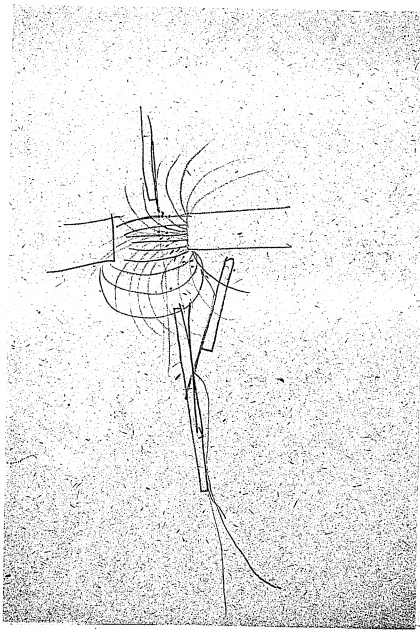
46 – Round fibre treated 17 hours –
Forms & 6 prelim 350 deg
by Raidtn 1 day then in
17 1 day – then reprelim 500.
final

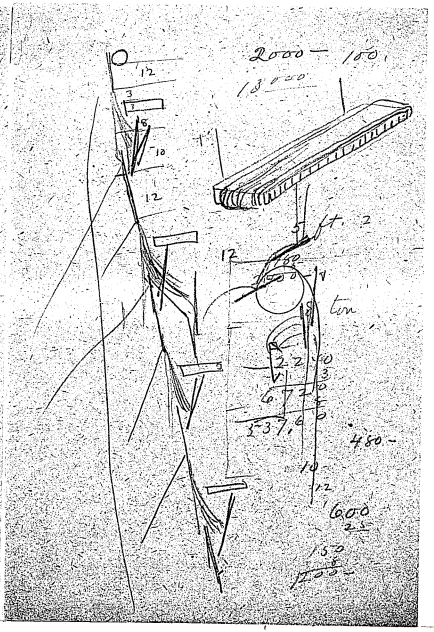

25 Cells N To Line
Closed
Closed
25 Cells on Positive
open
open
open -

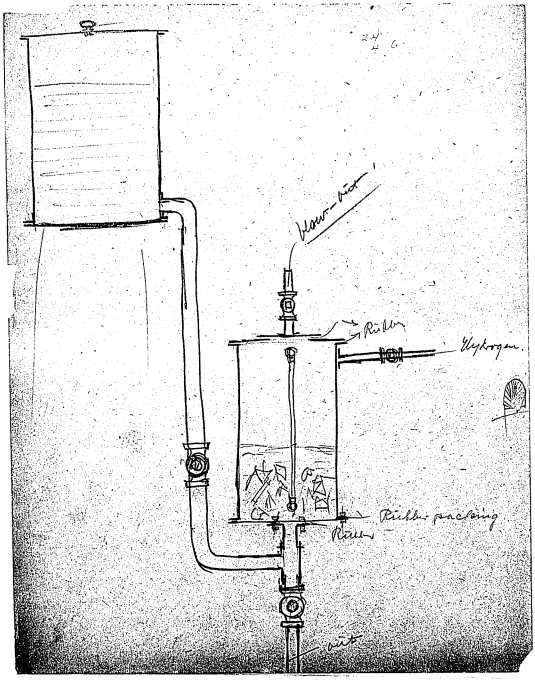

125 n To line
Closed
Open
(closed)
open closed
open
closed open

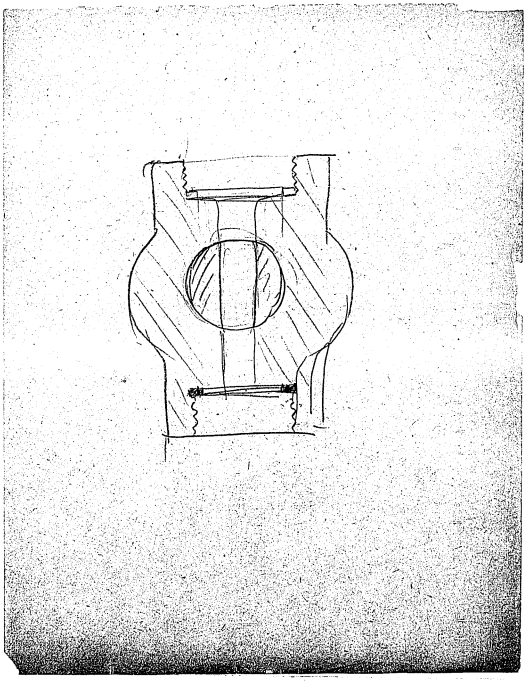

nothing on
open
or
closed

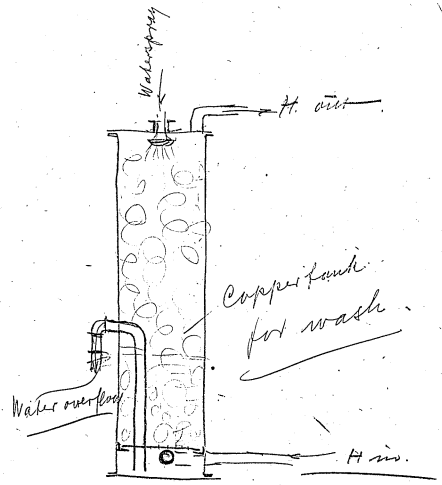

25 cells
100 cells
25 cells
closed
25
100
Open



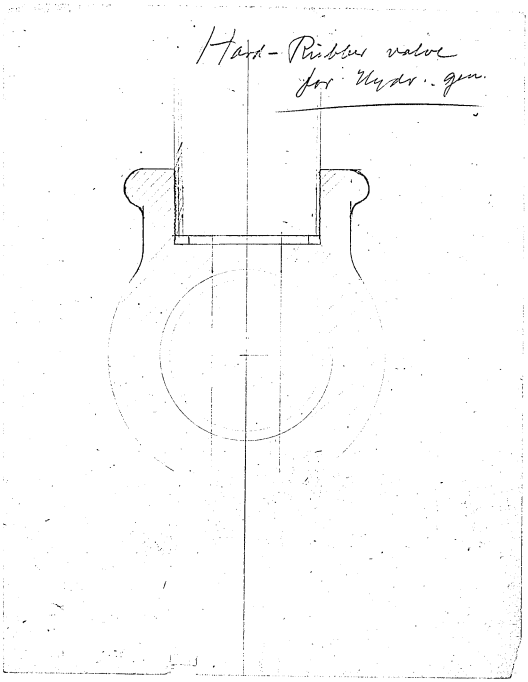

2000 — 100
12
3
10
12
ft. 2
12
ton
480 -
600
150

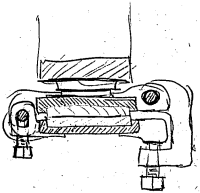

Rubber
Hydrogen.
Rubber packing
Rubber
water




Water spray
H. out
Copper tank for wash
Water overflow
H in.

Hard-Rubber valve
for Hydr. gun.



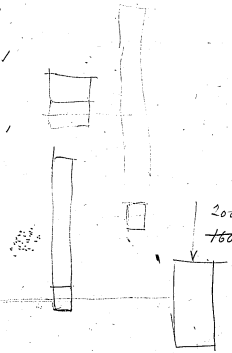


7.5 H.P. at 808 rev. per min.

180 lb.

32
160
192
32
5120
25,60
30.

16
3



F FORD

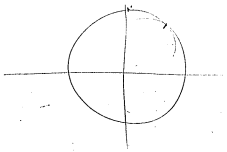
FORD

3,14

18,84 | 18.

18.

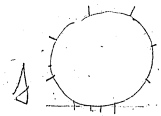
π.6



Orthoclase -
Ox ii = Magnesia
Plagioclases impalpable -
Calcined -

~~Stannate~~ ~~Chromate~~ Resinate
Lime or other Ins + Iodide of
K_2O Liberated Hence make
Resin Soda -

Aluminate of soda -
Burnt alum fine -



Ferric Hydrate
Magnesia Hydrate ?
Lime water CO_2 target
Ferric oxide CaO_2
Mysterious -

Cornell mine - K 1.54
Monomer - Na 0.17

Dup A Ore Milling

Redore hematite.
Specular Sam Ham 0.27
Na 0.30

Kaplinetown Marquette - K 0.90
Marquette - Na 0.86

Phillipsville Hematite
mg K 1.47
0.10

Lamont - Gridley Vein Arizona
Mr Dulcken
K 1.12
Na 0.34

Iron - W K Smith and Wolfstock
1.80 K
.17 Na

Boric acid ... its sal... alcohol

Sodic ...

Dicarbic acid

Dicarbic ... ~~glassy~~ waxy

Barium salt glassy

Trichl...

PKo

K phosphite ...

K ...

Na ...

Calcium ...

... deliq...

Dissolve ... stray ~~H2O~~ Solid

1887

Carbolic Acid

Citric " —— water ✓

Tannic " —— ~~water~~ Water, ✓

Oxalic " —— water, ✓

Salicylic " —— alcohol ✓

Albumen egg — Water — cold ✓

Anilines — blue — alcohol —

Amatto —— Oil Turpentine,

Cochineal —

[illegible]

Opium Camber — Turpentine ✓

" " Benzoin — powder 100 mesh dissolve in Hot Linseed oil

" Guaiacum

Shellac —— alcohol ✓

Gutta Percha — Chloroform — if not try aniline oil ✓

do [illegible] —— water ~~if not turpentine~~

Malachite

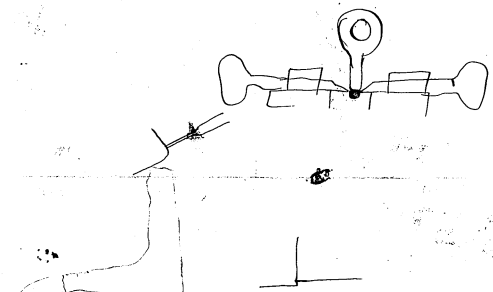
Castor Oil —— nothing ✓

Sulphate Morphia — alcohol — $\frac{1}{5}$ in bulk to water ✓

THOMAS A. EDISON,
No. 65 FIFTH AVENUE.

Form L. 1200-3-15-'95.

New York, ... 188

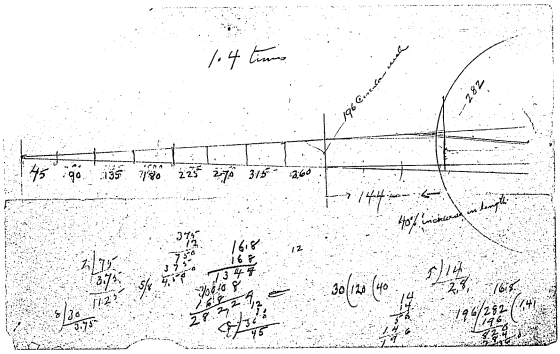


#4

Wilson Howard & Hosmer's Improved Electric Pen.

Specification and Claims to Letters Patent of the United States, herein referred to, and made a part hereof.

Fig. 1 is a perspective view of the pen, partly in section, showing the electric connections, and the electrical connections of the pen with the electric motor.


1.4 times
196 Circumference
282
45
90
135
180
225
270
315
360
144
405 Inches in length

Dipping
Shellac
Burning hot
Shellac
then melts out

Dyer

How is about new phono patent for foreign has gone or can I add a new clause to it

Edison

841 - switch with brake attachment ✓

842 - marking pencil to show where second chips; loose wiper for chips

847 - water motor; friction governor; belt tightener ✓

848 - pneumatic bulb for lifting spectacles

852 - blank made of paper lining arch to wind evenly & covered with paraffine & outside of compound with sufficient coat of carbon

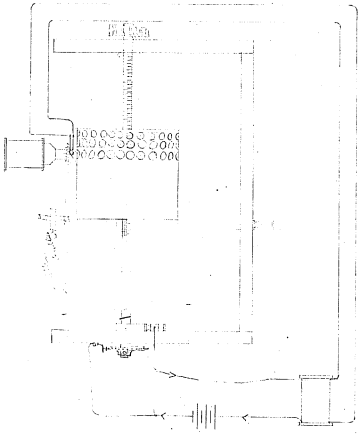
854 - new mailing box ✓

859 & 861 - sapphire points

Thin edge meals
Moist of air in
Max -
Acid of max
attacks edge -
Cutting tool &
reducing point
of sapphire

Refinishing point
quartz
[illegible], garnet or
other similar or earthy
acids - Rust

E190-0292-2.47
Cat. 1443



Witnesses

Inventor

By Attorney

Watts total = 6000 × .8 Amp. = $\frac{4462500}{750}$ = 622

R_{ins} = $\frac{1500}{622}$ = 2.41 Ohms

Ohms per foot $\frac{2.41}{21,000}$ = .00001142

= 10% more than No 11 (American gauge)

= 11 #12 lbs per foot of 11 = .233 × 11

= 2.78

Total lbs = 2.78 × 21,000 = 58,400 lbs

= $99.020

Rough [illegible] = 1500 ft = of [illegible]

= 6250 K.W. = 4500000 Watts

= $\frac{4500000}{7500}$ = 625 Amp.

V = .00001142 × 7500 = $\frac{1500}{625}$ = 2.5 Ohms

= for 5000 × 40 = 200000 ft = .00001

5000 H.P. 20 miles @ 6000 V.

at 80% Eff.

$= \frac{5000}{.8}$ H.P. $= 6250$

$= 6250 \times 746 = 4,662,500$ Watts

$= 770$ Amp.

Res. $= \frac{6250 \times 2}{770} = 16.24$ Ohm.

Res. per ft $= \frac{16.25}{5280 \times 40} = .000007695 = .000769$

$= 10^{\#}00$ (Aluminum g) wire

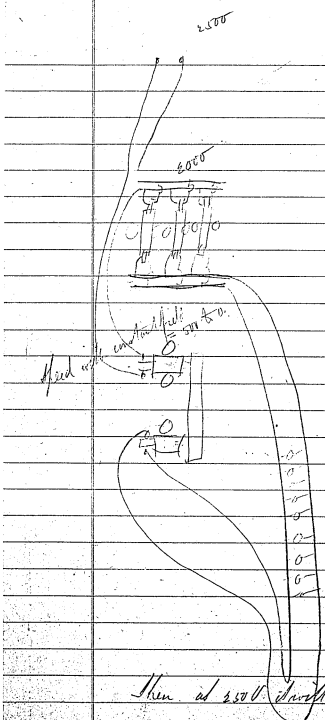
$= 5280 \times 40 = 211,200 \times .403 \times 10 = 851.136$

$\therefore$ Ins $=$ @ 17c $= \$144.69$.

Transmission 5000 H.P. 20 miles @ 6000 V

$= 6250$ H.P. $= 4,662,500$ Watts total

Length $= 20 \times 2 \times 5280$ ft $= 211,200$ ft



2500 total
2000 V in line
300 V rotor in Rotor
100 in the transformer
= 2000 watts in
other transf
= 2 ampere V = 20 amp

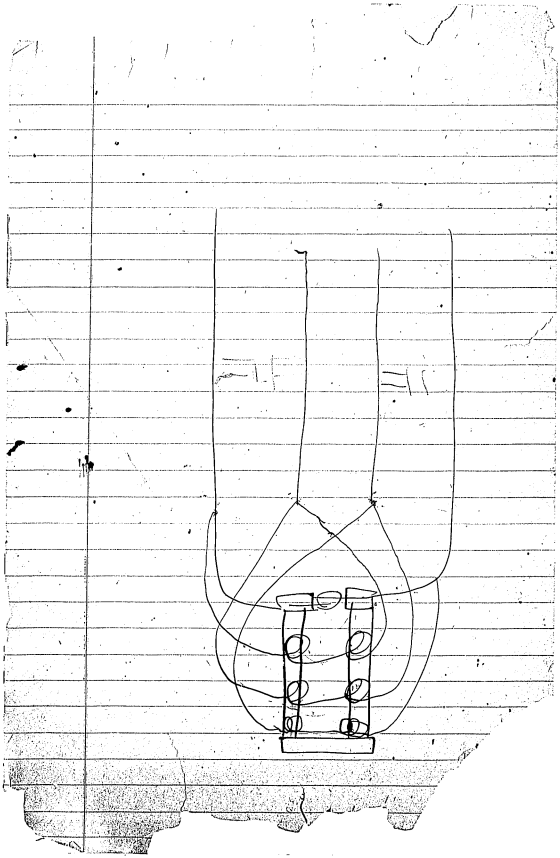
C in main transf
= 200 amp

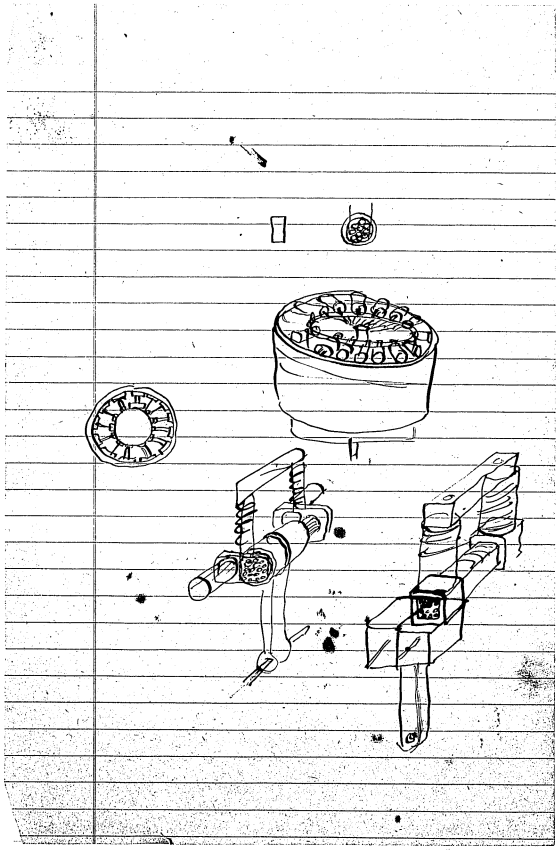
If you let volts drop
below 250
= 2500 from station
= 2250 for 2000
at transformer
station.

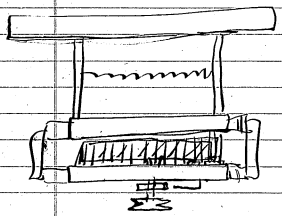
Then at 2500 V. drop take ½ load in amp.

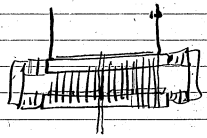
or at 500 ½ load.

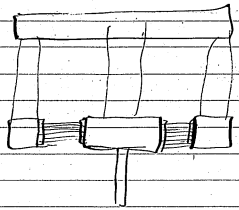
Need of motor alone cannot be thing of
volts in other syn.

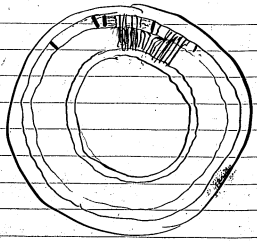


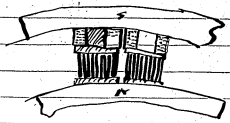








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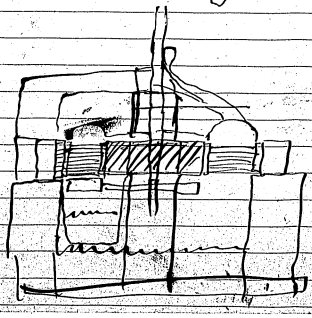
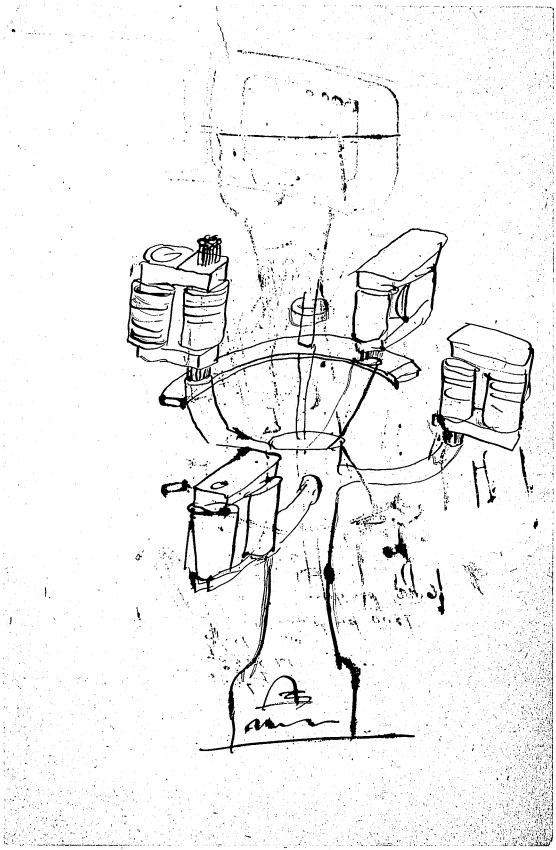
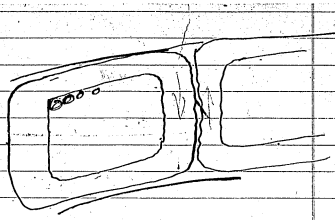
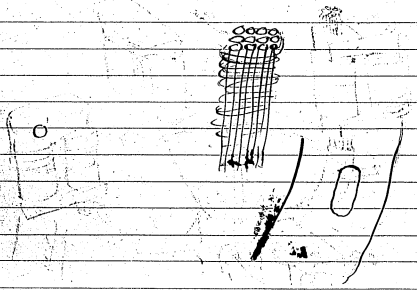




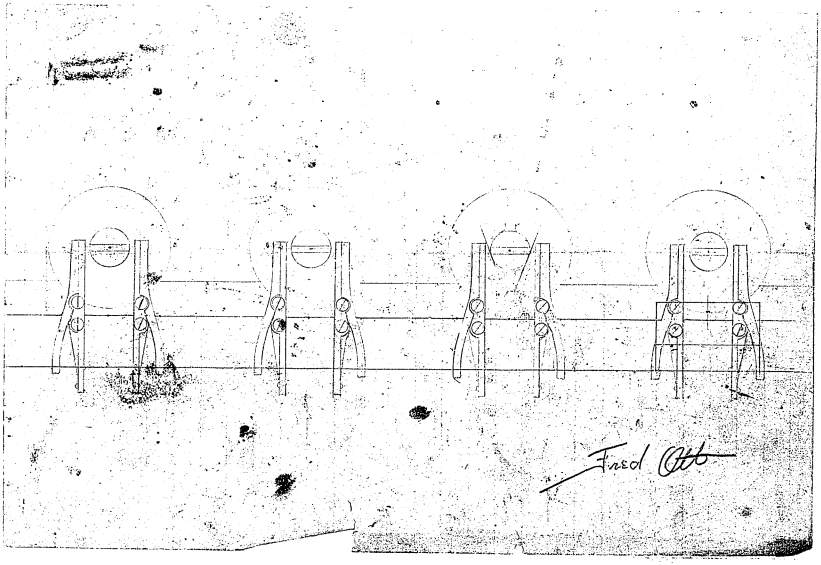




600.-

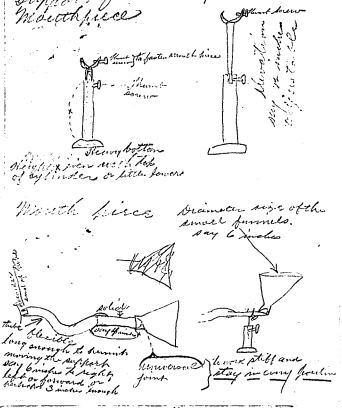
6000, per year
7500 per year

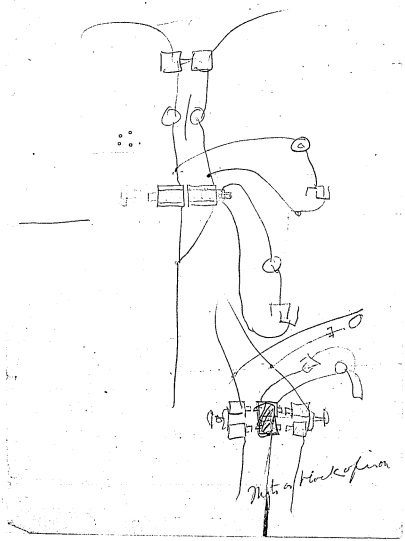
7500
17 52500
7500
7500


Fred Otto

Support for Mouth piece

Telephone




Mate on Hook of Crane

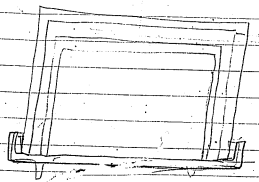
56

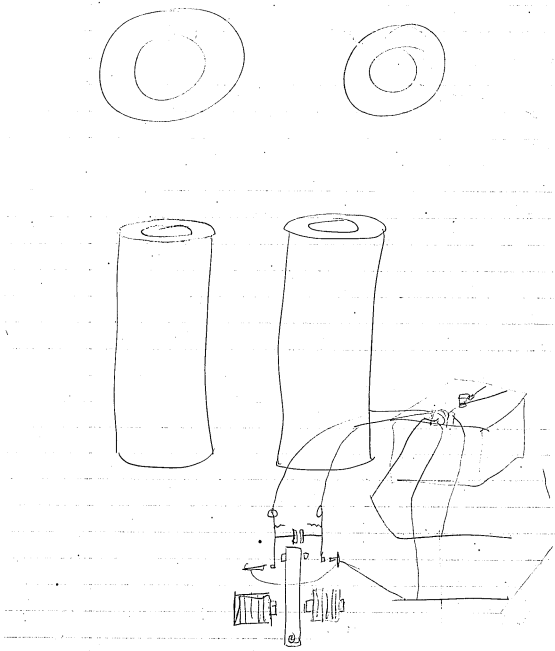
3/64

1 1/2 high
4 1/2 wide -
8 inch long } inside measurement.

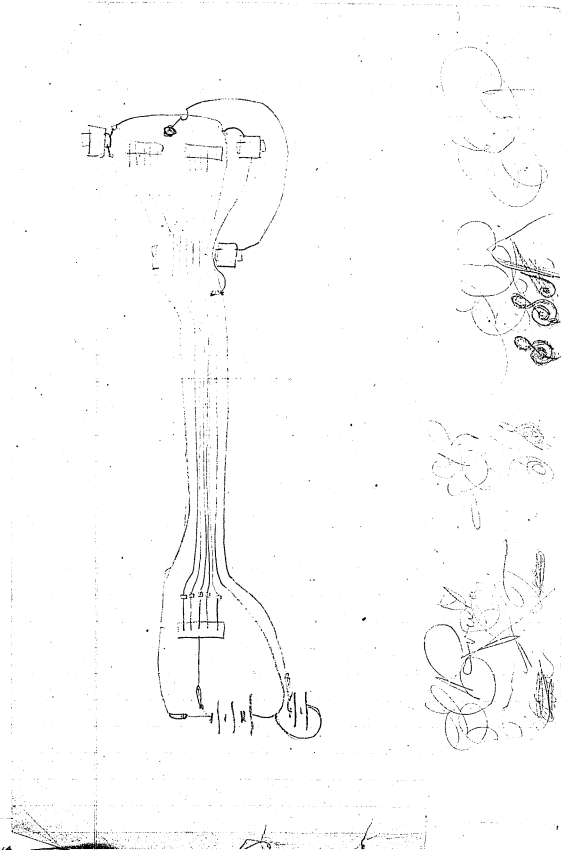
1/2 inch stock,

Outside cover 1/2 inch all round space -

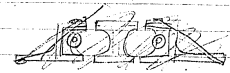




[ON BACK: "MOTOR WIRE"]



(1)



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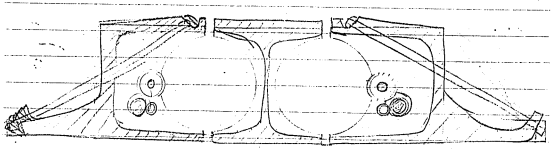
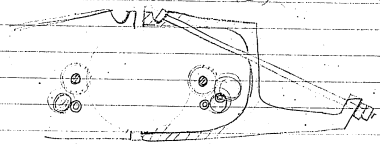
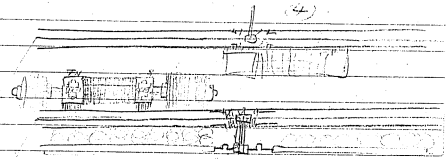
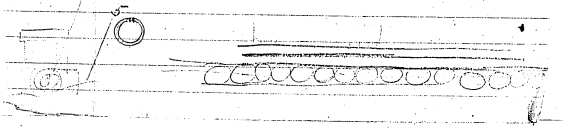


(3)



(4)





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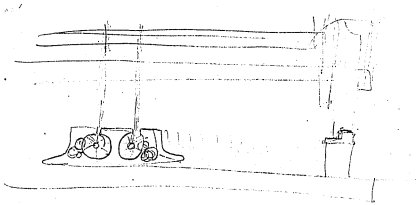
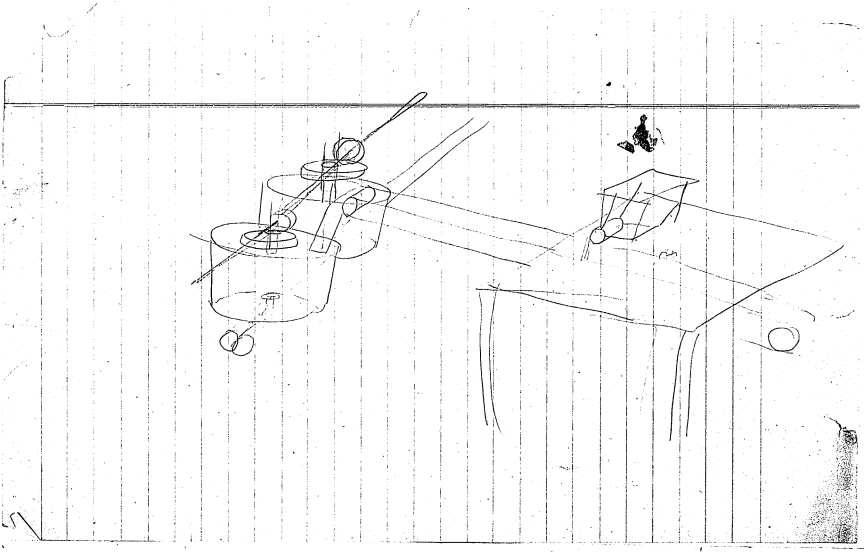
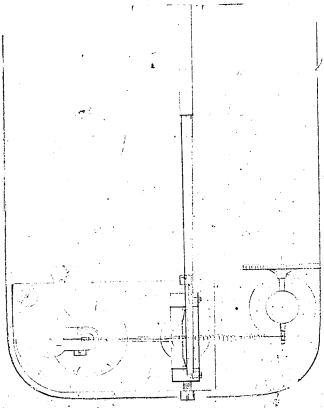
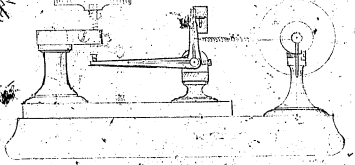
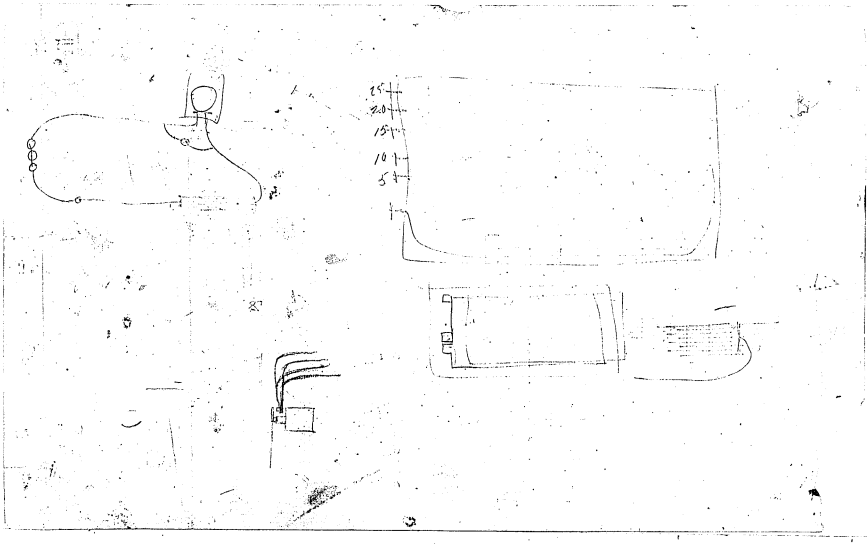


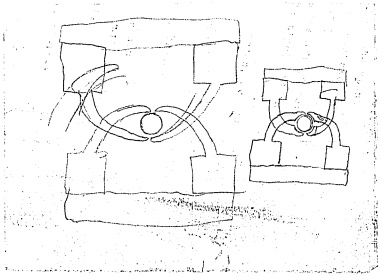






January 25th Chas. Wells

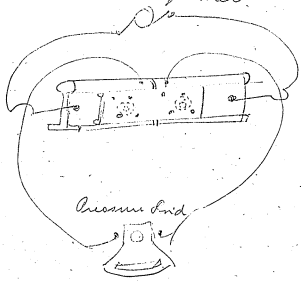

25
20
15
10
5



1

The tests made on rail bond for the Brown,

They were as follows



Made round disks 1 3/4 inch round with 1 1/4 in hole thus was filled up with Tin Amalgum laid between rail and fish plate as shown by dotted lines on sketch

2

Amp	Deg	Test
100	0	Each degree
200	0	represents 1/30 of a
300	0	Volt
400	1/8	Mr Brown says each
500	1/8	car takes 50 amp
600	1/4	20 cars on the Orange line
700	1/4	about on South Orange
800	1/4	20 Springfield Av and
1000	1/2	Vernon St Washington
1500	3/4	St Bruce Av lines
This is almost perfect for contact		all come in on

3

and back in twenty
this must carry all
the current, Brower
says there are
two thousand feet here
He says a spring float
between the reel and
first float is not sufficient
to carry the current

Feed screw bar which carries diaphragm across cylinder
Cylinder
Feed screw from clockwork
Clock work
Key for winding
Speed adjuster

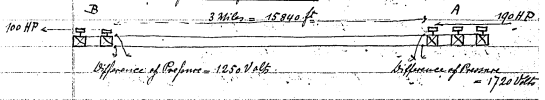
I see that Franklin Prings makes a long discription of this brush effecting a brush Voltage and writes it by putting resistance in brush, the same lines you experimented on the latter part of 1889

J. F. Ott

Found in Penga Single phase commutator motors 12/28/37.

Edison Pearson & Co. (1884) 1

Transmission of Force. (100 HP.)



Dynamo H (modified).

Armature

Diameter of Iron core = $9\frac{11}{16}$"

Length of Armature = $30\frac{1}{2}$"

Outside Diam. of Armature = $10\frac{1}{2}$"

Sectional View of 1 Division =

No of Divisions = 44.

Size of Wires (bare = .065" (B.W.G. # 16)
covered = .085"

No of loops = 5

Wires per loop = 3

Circular Mils per Loop = 12675

No of revolutions per minute = 1300

Total resistance of Armature = 0.33 Ohms.

Electro mot Force = 625 Volts

Current = 70 Amperes

field magnets

Size of Core = 7" x $25\frac{7}{16}$"

Size of Wire (bare) = .165" (# 8 B.W.G.)

Length of Wire per coil = 700 ft.

Current in Wire = 35 Amperes

No of cores = 6

connected

Resistance of field magnet wires = 0.4 Ohms

Weight of field magnet wires = 346 #

Station A. 3 Dynamo H in Serie

Mechanical energy on Pulleys of said 3 Dynamos = 190 HP.
Loss by friction & Heat in Armatures = 14 HP (7%).
Electro M. force of 3 machines in Serie = 1875 Volts
No of Revolutions = 1300.
Current generated = 70 Ampères
Resistance of 3 Machines in Series = 2,2 Ohms
Loss in machines (electrical energy) = 14,45 HP.
Difference of Pressure at Poles of 3 machines = 1720 Volts

Station B 2 Dynamos H in Serie.

Mechanical energy on Pulleys of said 2 Dynamos = 100 HP
Loss by friction & Heat in Armatures = 7,5 HP (7%).
Electrical energy required = 107,5 HP.
Electro M. force in machines B = 1146 Volts
Resistance of 2 machines in Serie = 1,46 Ohms
Difference of Pressure at Poles of machines B = 1250 Volts

Conductor. Drop of Pressure in conductor = 1720 − 1250
= 470 Volts

44 ℔ Total length of conductor = 2 × 15840 ft = 31680 ft
Size of conductor = 48400 cmil = #5 B.W.G.
Weight of conductor = 4641 ℔.

New York, April 24th 84

Gerhard Gmür

Efficiency of Transmission of Force = 52,6 %.

Size of conductor	484000 cm. B.W.G. #5	90000 cm. #1	144400 cm. #00.
Weight of 31680 ft. (6 Miles) of conductor	4641 ℔	8630 ℔	13845 ℔
No. of Horsepower on Pulleys of Station A	190	168	158
Total Efficiency of Transmission of Force	52,6%	59,5%	63,3%
Electro M. force at Station A	1875 Volts	1660	1565
Difference of Potential at Poles of mach. A	1720 "	1505	1410
El. M. Force per mach. at Station A	625	553	522
No. of revolutions (about)	1300	1150	1100
Loss in Conductor	44 HP	24 HP	15 HP

(1) : Φ :

DETAILS

FOR

MULTIPLE DYNAMO.

(10 Sheets.)

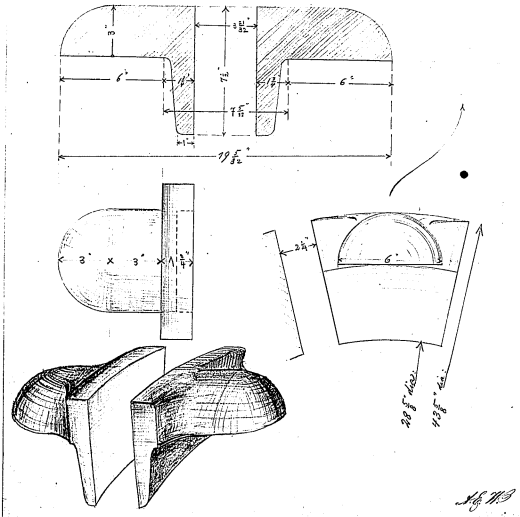
L[illegible] OF
T. A. EDISON,
Alfred C. Moses

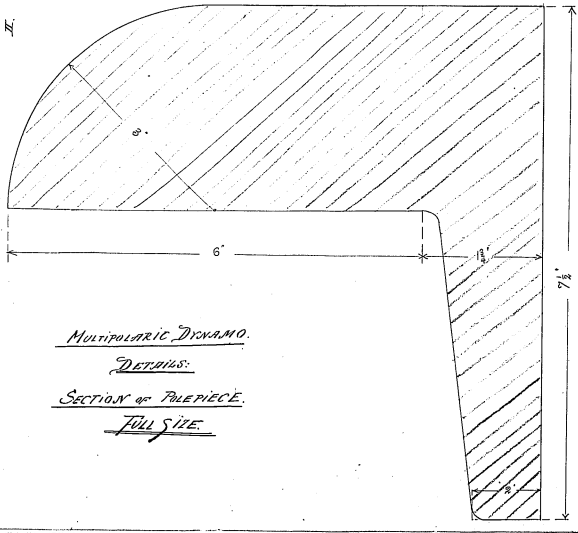
I. I.

MULTIPOLARIC DYNAMO.

DETAILS: POLE PIECES. 1/4 SIZE.

CAST IRON.





MULTIPOLARIC DYNAMO.

DETAILS:

SECTION OF POLEPIECE.

FULL SIZE.

II.

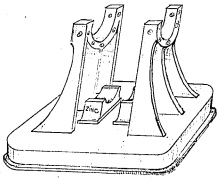
No. 1.

III.

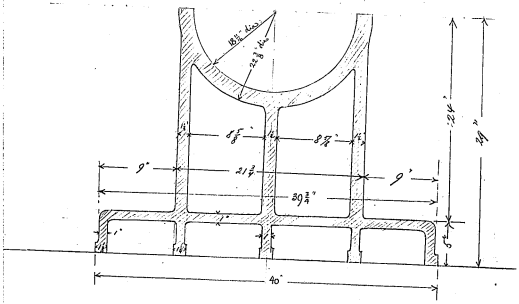
MULTIPLE DYNAMO.

DETAILS:

BED and ZINC.



SIDE SECTION OF BED.



1/8 SIZE.

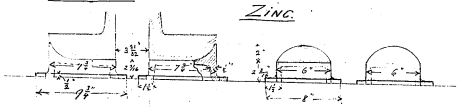
A.E. 115

MULTIPLE DYNAMO:

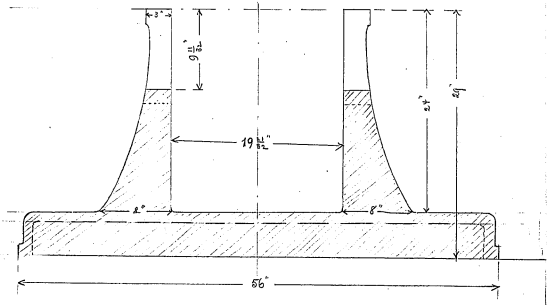
DETAILS:

IV.

ZINC.



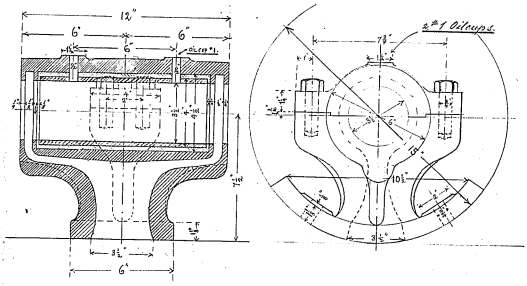
BED.^N FRONT-SECTION



1/8 SIZE.

A.E.M.

V.



MULTIPLE DYNAMO.

DETAILS:

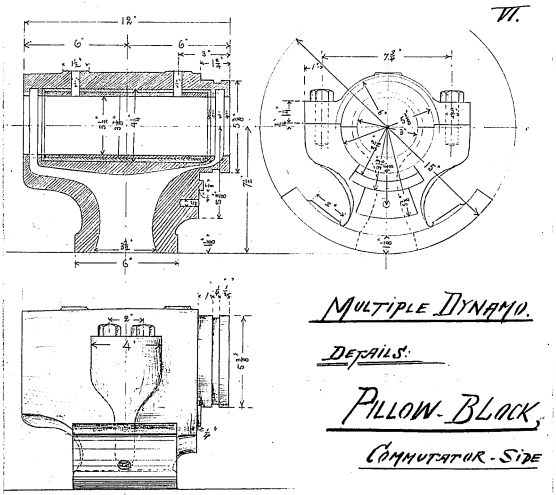
PILLOW - BLOCK,

POULEY - SIDE.

¼ SIZE.

H.C.W.

VI.



MULTIPLE DYNAMO.

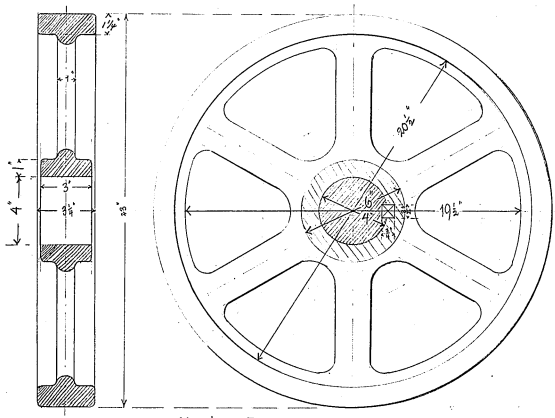
DETAILS.

PILLOW-BLOCK.

COMMUTATOR-SIDE

$\frac{1}{4}$ SIZE.

H.E.C.



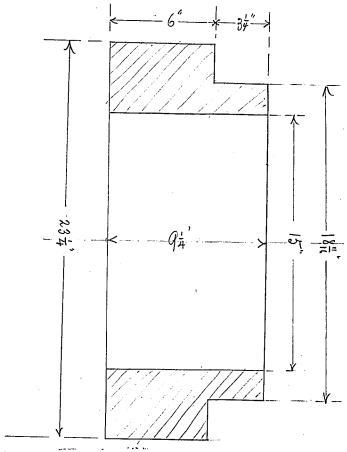
MULTIPLE DYNAMO.
DETAILS. FLY WHEEL for ARMATURE BODY.
1/4 SIZE

III.

A.K.

1 1

VIII.



MULTIPLE DYNAMO.

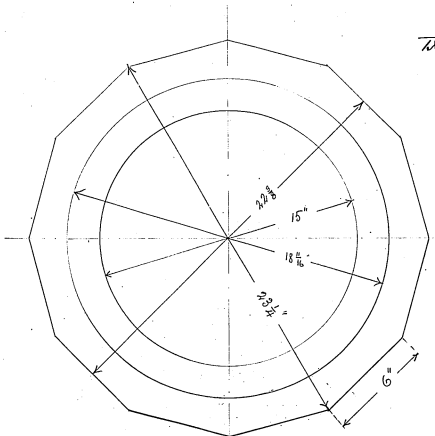
DETAILS: WROUGHT IRON CORE-BEARER (JOKE)

FRONT SECTION

1/4 SIZE

A.W.

IX.



MULTIPLE DYNAMO
DETAILS:

WROUGHT IRON
CORE BEARER (JOKE)

SIDE VIEW.

¼ Size

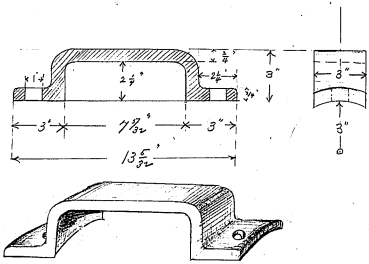
Geo.

CABLE ADDRESS "EDISON, NEW YORK"

THOMAS A. EDISON,

40 & 42 WALL STREET.

NEW YORK, _____ 188



MULTIPLE DYNAMO:

DETAILS.

PHOSPHOR BRONCE

TOP. PIECES (2)

1/4 SIZE

A. M.

Multiple Dynamo.

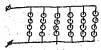
Capacity: 124 Volts 36555 Watts.
297 Amp.

Armature-Speed: 6000 feet p minute = 1200 inches p second. 577 Rev. p min

Weight: about 5000 lbs.

Armature-Resistance: ·0123 ohms
Magnet-Resistance: 38·625 ohms, each of 24 cores, 19·1 ohms, total, 6 × 4 cores

Diagram of Magnet-Connection.



External Resistance: ·4175 ohms
Internal Res: ·0123 ohms

Dimensions.

Armature Body: Gramme Ring, asphalted iron strips ·010 thick, rectangular section 3·25" × 7·125" outside Dia: 43·3125"; inside Dia: 29·0625". On top and bottom a ⅜" Brass ring; screwed together by 12 × 2 ⅜" bolts ½" Insulation, and fastened by the same bolts to a 23" Dia. Cast iron flywheel. Shaft 4".

Winding: One continuous winding of 696 turns of #11 B.W.G. wire (·120" dia; ·134 with insulation). The armature winding consists of 6 parts each having 58 coils of 2 turns #11 wire and six parts connected in multiple. Each part has 116 turns of #11 wire twice round 58 divisions therefore

Field.

Cores: 24 regular #1 cores, 5" dia: 7.625" long arranged on both sides of the Gramme ring in such a manner, that the opposite cores have the same, the following have the contrary polarity.

Winding: Each core wound with 8.875 lbs of # 21 B.W.G wire; total weight of wire 213 lbs.

Yoke: The 24 cores are fastened on two wrought iron rings, 12 on each ring. The outside circumference is a regular 12 sided, each side = 6 inches = outside dia: of cores: Inside dia: of hole: 15"; circumscribed dia: 23.25". dia: of circle, inscribed to 12 side: 22.375".

Polepieces:

3 inches, hight over magnetcores
depth of the part opposite to armature: 7.5"
distance: 2.25"

Outside dia: of field: 43.625".

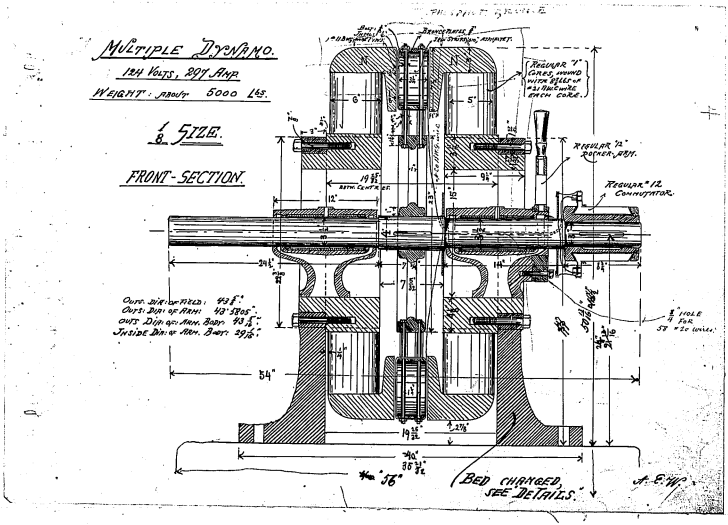
Commutator: 58 divisions. Regular #12.

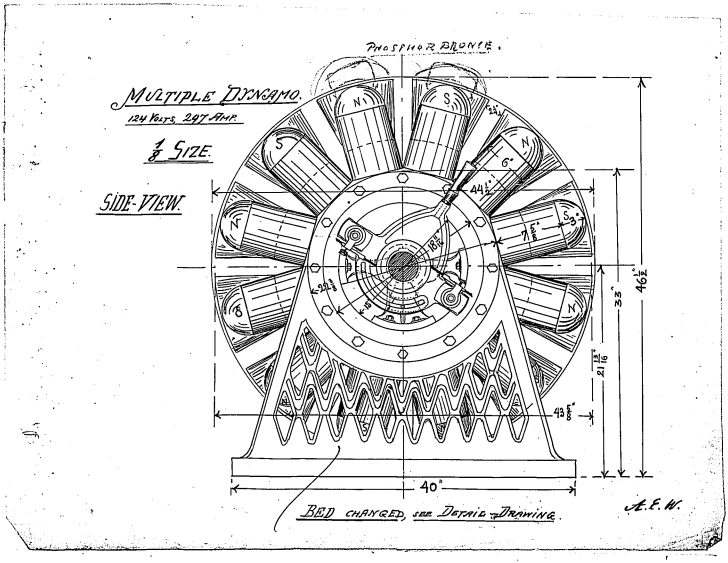
Brokenarm & Brushholder: Regular #12.

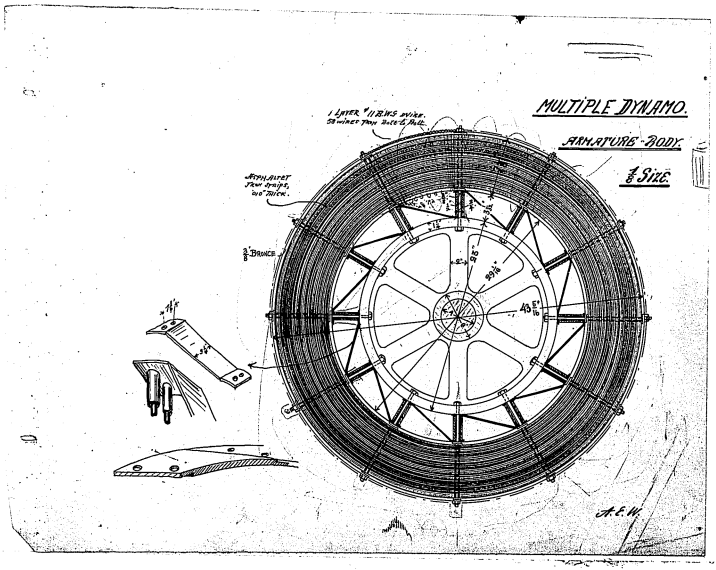
Pillowblocks: $3\frac{1}{2}$" bore: Three feet, rounded.

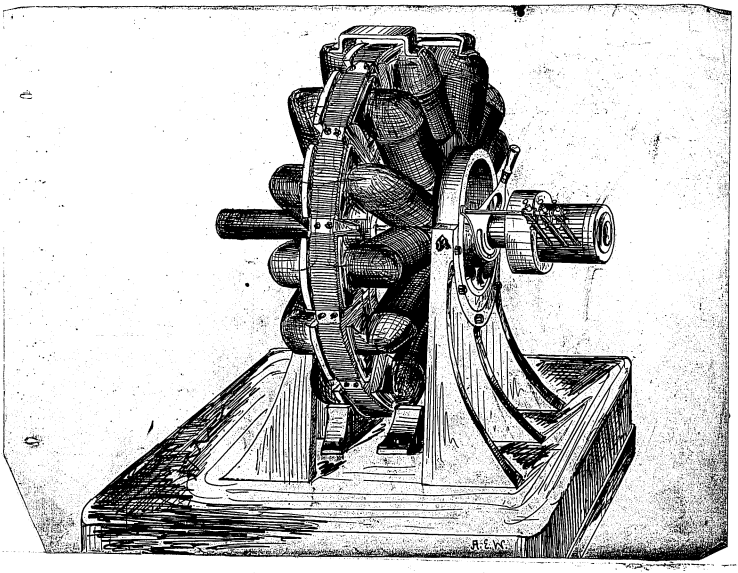
Electrical Efficiency: 95 %.

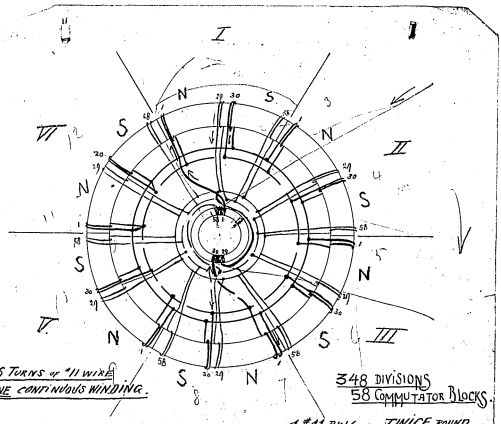
S.E.W.S


MULTIPLE DYNAMO.
124 VOLTS, 207 AMP.
WEIGHT: ABOUT 5000 LBS.
1/8 SIZE.
FRONT-SECTION.
REGULAR "1" CORES, WOUND WITH BELLE W #21 NO. WIRE EACH CORE.
REGULAR "2" ROCKER ARM.
REGULAR "12" COMMUTATOR.
BEARING BRASS & TIN SHIMS, AIRPORT.
BEARING BRASS & TIN SHIMS, AIRPORT.
BATH CENTER
OUTS: DIA: OF FIELD: 43 3/8".
OUTS: DIA: OF ARM: 43 3/8".
OUT: DIA: OF ARM. BOTT: 43 3/8".
INSIDE DIA: OF ARM. BOTT: 27 1/16".
1/8" HOLE FOR 58 #20 WIRES.
BED CHANGED, SEE DETAILS.
A. E. W.


PHOSPHOR BRONZE.
MULTIPLE DYNAMO.
124 VOLTS. 247 AMP.
1/8 SIZE.
SIDE-VIEW.
N
S
6"
44½"
7⅝"
3⅝"
18⅝"
5⅝"
32"
46½"
21 13/16"
43 5/8"
40"
BED CHANGED, SEE DETAIL DRAWING.
A.E.W.


MULTIPLE DYNAMO.
ARMATURE-BODY.
1/8 SIZE.
1 LAYER 11 TURNS WIRE.
BRANCH
35"
29 1/8"
43 5/16"
A.E.W.





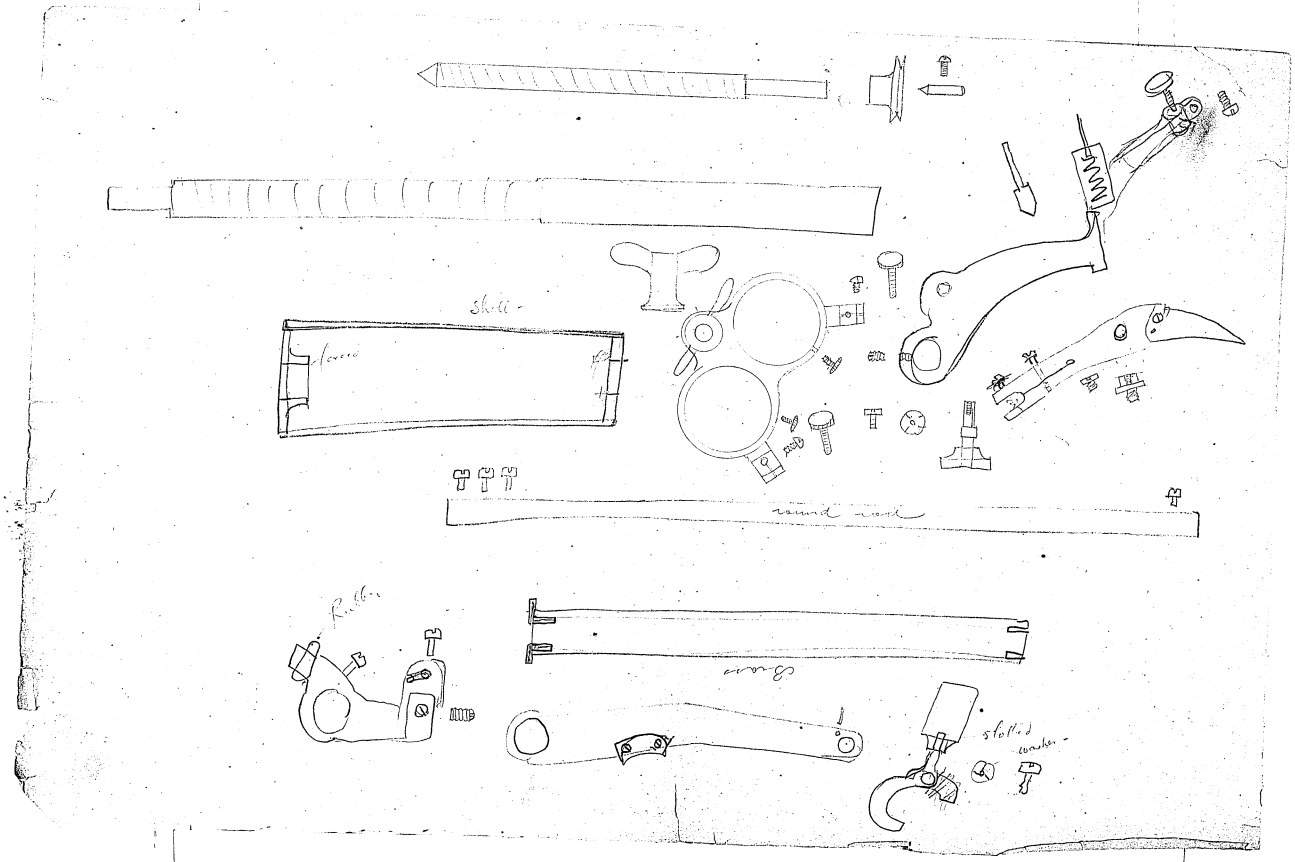
MULTIPLE DYNAMO.

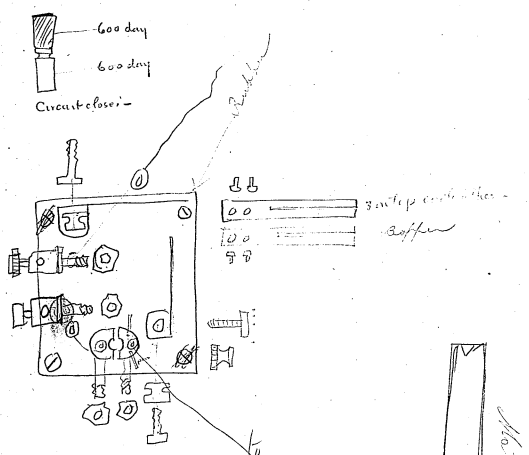
DIAGRAM OF ARMATURE-WINDING.

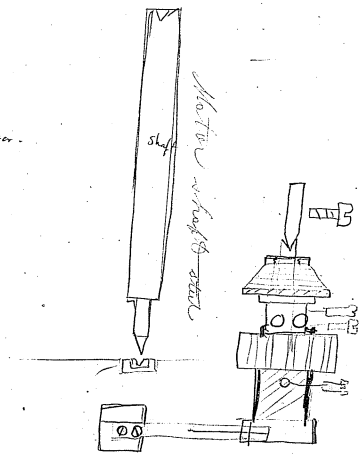
The six parts I ... VI of the armature, each having 58 spools, 1 ... 58, are connected in multiple arc.

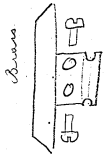
The 6 Beginnings of the 6 spools #1 and the 6 Endings of the spools #30 are connected to the commutator Block #1; during the 6 endings of spools #1 and 6 beginnings of #30 are brought to Block #30, opposite to #1 Block. — The beginnings of spools #2 and Endings of #31 are also connected to Block #2, and Endings 2 with Beginnings #31 to the diametrical Block 31. &c. — Finally: Beginnings #29 and Endings #58 to Block 29; Endings #29 and Beginnings 58 to Commutator Block #58.

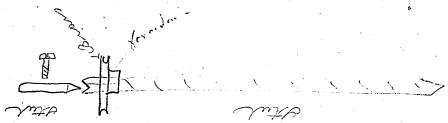
A. Wilmer.

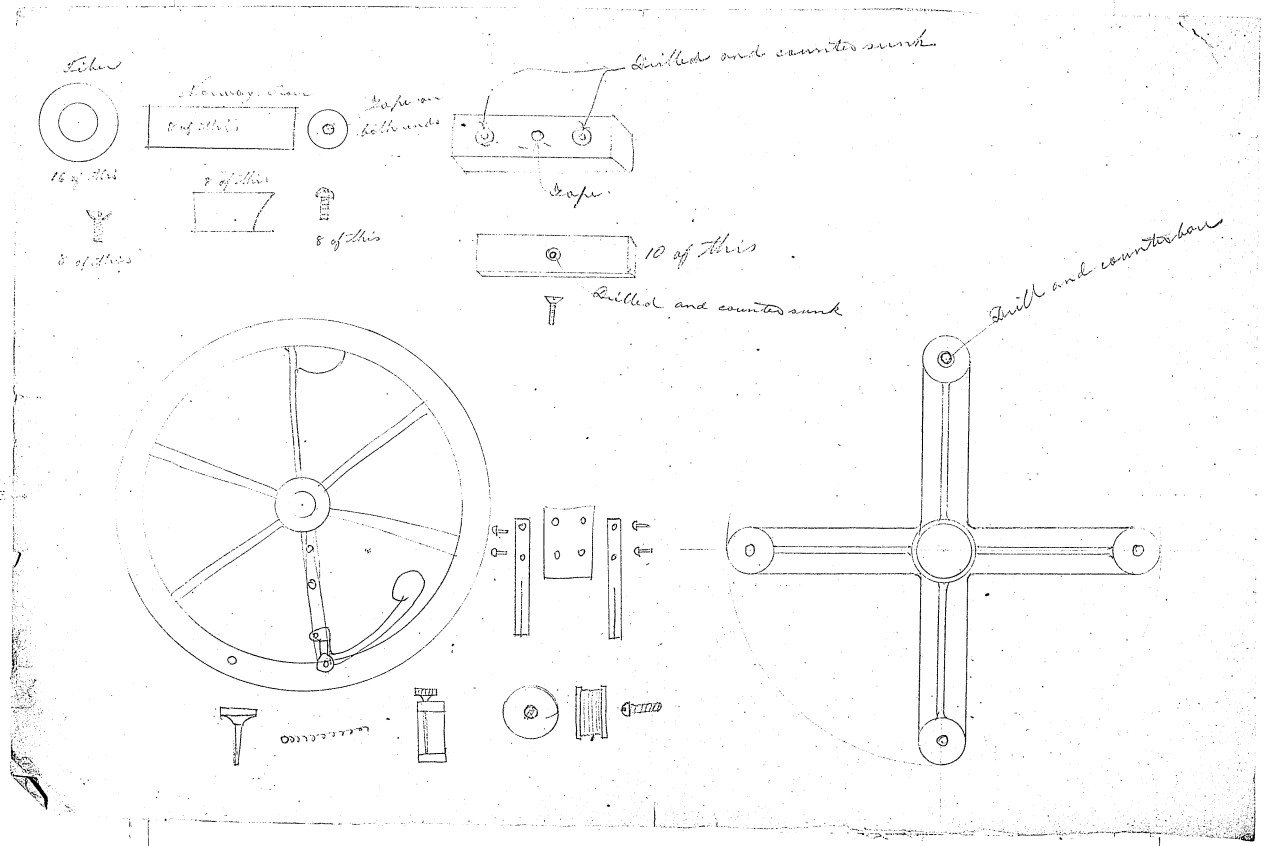

Shell
Lever
round rod
Rubber
Gun
slotted
washer


600 day
600 day
Circuit closer
governor

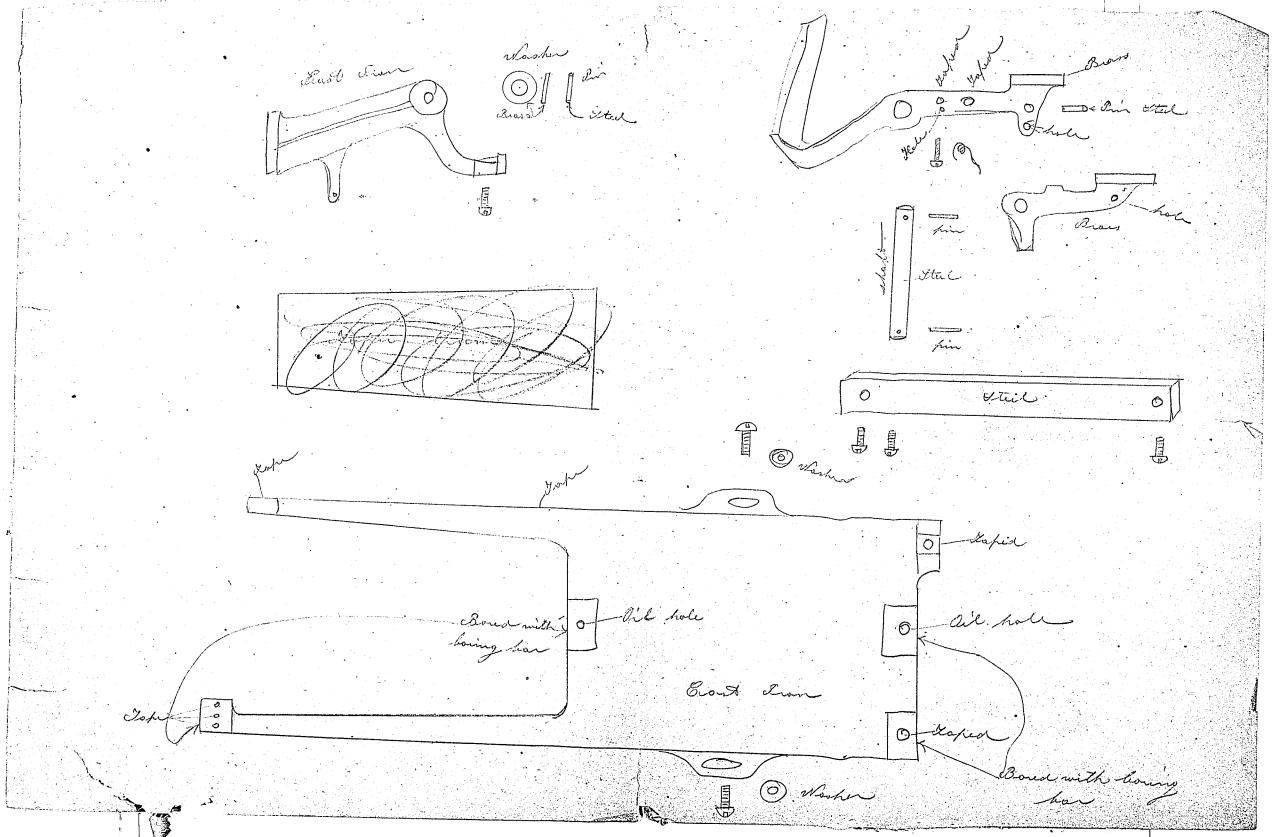

shaft



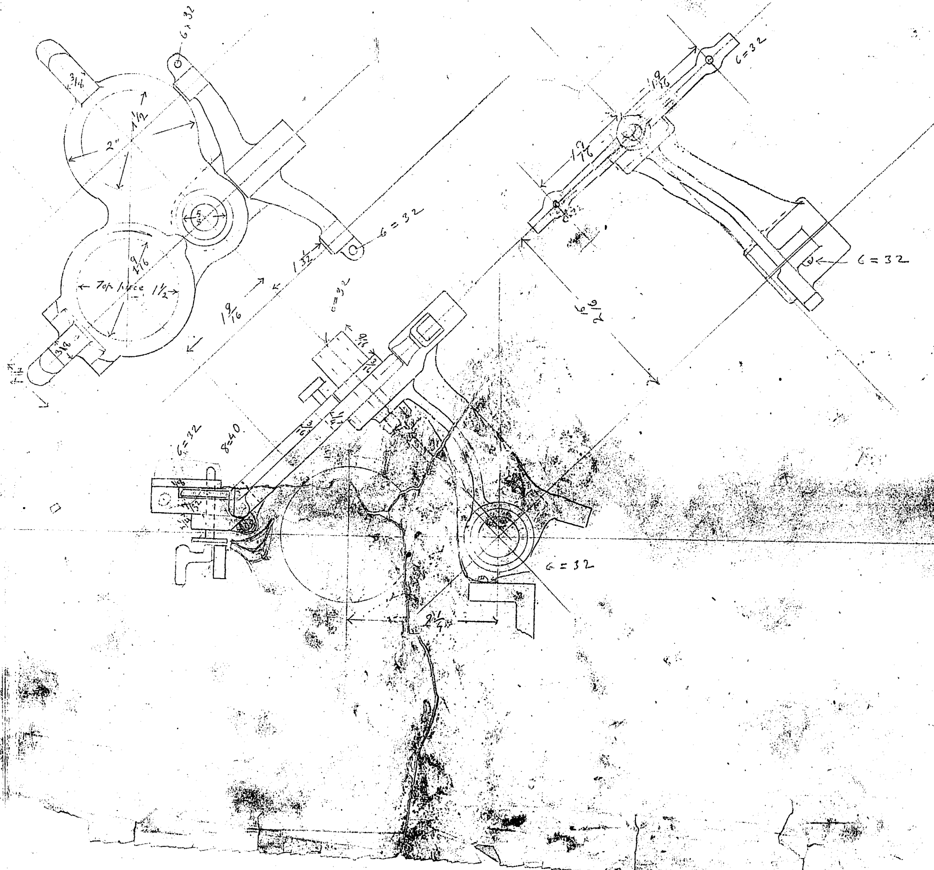



Tube
16 of this
Runway Case
4 of this
Tape on both ends
Drilled and countersunk
Tape
2 of this
8 of this
8 of this
10 of this
Drilled and countersunk
Drill and countersink

12
14


Cast Iron
Washer
Brass
Pin
Steel
Hole
Hole
Hole
Brass
Pin
Steel
Hole
Brass
Hole
Pin
Shaft
Steel
Pin
Steel
Washer
Yoke
Yoke
Keyed
Bored with boring bar
Oil hole
Oil hole
Cast Iron
Yoke
Keyed
Bored with boring bar
Washer

β = 40
α = 64


6-32
3/16
1/2
2"
5/8
9/16
Top piece 1 1/2
3/16
1 1/32
6=32
1 9/16
1 9/16
1 9/16
6=32
6 9/16
6=32
6=32
8-40
6=32
2 1/4"